



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD

EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 1 of 139
Issue 30
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DOCUMENT
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Manager

Reason for Change: To incorporate CR #9965, completely revising Plant Standard STD-3140 to reflect changes in the critique process and revised site-specific criteria. This change incorporates requirements from DOE Order 0 232.1A, and DOE M 232.1-1A. Destroy all previous issues of Plant Standard STD-3140.

CONCURRENCES:

PROCEDURE LEVEL-OF-USE	
	Critical Use
	General Use
X	Reference Use

Juan Alvarez, IAA&Q Office
J. W. Angelo, Manufacturing Division
J. B. Bidwell, Acting Administrative Services Division
J. C. Cantwell, ES&H Division
A. J. Dionizio, Operations Support Division
J. N. Gilbert, Facilities Division
B. K. Pascal, Information Management Division
R. T. Rowe, Human Resources Manager
A. P. Sowa, Safeguards, Security & Fire Protection Division
W. A. Weinreich, General Manager
H. A. Woltermann, Applied Technology Division
J. C. Yarbrough, Engineering & Design Division

Document Custodian: Bob French

APPROVAL:

/s/Juan Alvarez 3/26/98
Juan Alvarez, Internal Audit, Assurance & Quality Manager Date

/s/W. A. Weinreich 3/26/98
W. A. Weinreich, General Manager Date

/s/John Bernier 4/30/98
DOE/AAO Contracting Officer Date

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MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 2 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

Table of Contents

1.	PURPOSE	4
2.	SCOPE	4
3.	PROCEDURES	4
3.1	¹ Training	4
3.2	Discovery of an Event	5
3.3	Categorization of Abnormal Events or Conditions	8
3.4	Notification	10
3.5	Critique	13
3.6	Notification Report of Occurrence	18
3.7	Roll-Up Reports	19
3.8	Update Reports	20
3.9	Final Reports	21
3.10	Rejected Reports	23
3.11	Performance Monitoring	24
3.12	⁴² Placement of Final Reports Into Public Reading Rooms	24
3.13	Report Closure	25
4.	REFERENCES	26
5.	DEFINITIONS	29
6.	RECORDS	37
7.	APPENDICES	37



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD
EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 3 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX A	38
APPENDIX B	45
APPENDIX C	96
APPENDIX D	102



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 4 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

1. PURPOSE

To establish the processes for investigating and documenting abnormal events or conditions, conducting critiques to obtain facts, information and timelines, and reporting occurrences with safety, environment, health, security or operational significance.

2. SCOPE

This procedure applies to all operations conducted at Pantex Plant.

3. PROCEDURES

3.1 ¹Training

3.1.1 Division Managers arrange appropriate training for personnel according to responsibilities in the following areas:

- (a) Objectives and application of the process for:
 - (1) Identification, notification, and reporting of events
 - (2) Categorization of occurrences that are reportable to DOE
 - (3) Critiques and investigation
 - (4) Analysis
 - (5) Determination of causal factors, and generic implications
 - (6) Implementation, tracking, and close-out of corrective actions.
- (b) Use of the Occurrence Reporting Program System (ORPS) database, including input of occurrence reports and obtaining information from the database.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 5 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

3.2 Discovery of an Event

3.2.1 Employees:

NOTE

In the event of fire or medical emergencies, calling extension 3333 results in the fastest response.

- (a) ²Take immediate action to stabilize or place the facility or operation in a safe configuration and preserve conditions for further investigation. Preserving of conditions for continued investigation is not to interfere with establishing a safe condition.
- (b) ³Report to the supervisor without delay, any abnormal event or condition.
- (c) ⁴If the supervisor is not available, notify the Plant Shift Superintendent (PSS) in the Operations Center at extension 5000.

3.2.2 ⁵Supervisors promptly report the abnormal event or condition to the Facility or Responsible Manager, or to the PSS when the Facility or Responsible Manager is not available.

3.2.3 Facility or Responsible Managers:

- (a) ⁶Notify the PSS immediately of an abnormal event or condition and provide, as a minimum:
 - (1) Facility or location.
 - (2) Time and date identified.
 - (3) Personnel involved, including life safety issues and injuries.
 - (4) Systems, structures, or components affected.
 - (5) Actions taken to stabilize operations.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 6 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

- (b) Coordinate activities at the scene of an abnormal event or condition, and stabilize conditions until relieved by emergency responders, if necessary.
- (c) Evacuate nonessential personnel from areas identified as hazardous.
- (d) Notify the Division Manager of all abnormal events or conditions with safety, environment, health, security, or operational significance.
- (e) Notify the Mason & Hanger Corporation (MHC) Weapons Progra Manager if weapons operations are suspended.
- (f) Request the Occupational Medicine Department (OMD) to perform drug testing during the normal working day, on those personnel involved:
 - (1) Within 24 hours of the occurrence, when the occurrence results in a fatality.
 - (2) Within 24 hours of the occurrence, when categorized as an emergency.
 - (3) Within 24 hours on transportation occurrences which result in injury or property damage.
- (g) Notify the Department of Energy/Amarillo Area Office (DOE/AAO) Facilit Representative of all events as soon as practical.

3.2.4

The PSS:

- (a) Ensures Facility or Responsible Manager has been notified and assigned responsibility in the PSS log.
- (b) Activates responders to the scene of the abnormal event or condition as appropriate:
 - (1) Spill Response Tea
 - (2) Fire Department
 - (3) Emergency Response Organization



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 7 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

- (4) Radiation Safet
- (5) Nuclear Explosives Safet
- (6) Internal Audit, Assurance & Quality (IAA&Q)
Weapons Quality Assurance (QA)
- (7) Risk Management
- (8) Occupational Safety & Health
- (9) Security
- (c) Directs remedial actions to all abnormal events or conditions to ensure that actions are taken to stabilize conditions.
- (d) Directs remedial actions for all emergencies until relieved by a senior manager according to the Emergency Preparedness Plan.
- (e) Requests the OMD to perform drug testing as needed during off-shift, holidays, and weekends for occurrences for those personnel involved:
 - (1) Within 24 hours of the occurrence, on personnel involved in occurrences which result in a fatality.
 - (2) Within 24 hours of the occurrence when categorized as an emergency.
 - (3) Within 24 hours on transportation occurrences which result in injury or property damage.
- (f) Notifies the DOE/AAO Duty Officer as soon as practical. If the Duty Officer is unavailable, contacts the Facility Representative for the DOE/AAO facility.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 8 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

3.3 Categorization of Abnormal Events or Conditions

3.3.1 Facility or Responsible Manager:

NOTES

1. EMERGENCIES are categorized in accordance with Section 4 of Emergency Preparedness Procedure (EPP) - 1000, "Pantex Plant Emergency Management Plan." This procedure is used to satisfy the notification and written requirements for EMERGENCIES.
2. A deficiency such that a structure, system or component (SSC) vital to safety or program performance does not conform to stated criteria and cannot perform its intended function is not considered a reportable occurrence provided the Technical Safety Requirement (TSR) and TSR-like action statements are followed.

- (a) ⁷Categorizes abnormal events or conditions as emergency, unusual occurrence, off-normal occurrence, or non-reportable event. The category is elevated, maintained, or lowered as information is made available.
- (b) ⁸Categorizes occurrences (using the Pantex Plant Site Specific Criteria, Appendix B), with the assistance of the PSS.
- (c) ⁹Categorizes the occurrence at the highest level when the occurrence exceeds the threshold of more than one criteria.
- (d) ¹⁰In some cases, categorization may not be possible until after the facts are fully established and the critique is conducted. Once identified as an occurrence, abnormal event, or condition, determines the reportability and category as soon as practical, but in all cases within two hours.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 9 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (e) ¹¹Categorizes reportable occurrences into one of the following ten groups as noted in Appendix B. These groupings facilitate trending and consistency in reporting.
- (1) Facility Condition
 - (2) Environmental
 - (3) Personnel Safety
 - (4) Personnel Radiation Protection
 - (5) Safeguards and Security
 - (6) Transportation
 - (7) Value Basis Reporting
 - (8) Facility Status
 - (9) Nuclear Explosive Safety
 - (10) Cross Category Items.
- (f) Following group determination, identifies applicable subgroup and the significance of the reportable occurrence as unusual or off-normal as defined in Appendix B.
- (g) Categorizes abnormal events or conditions not meeting the criteria for emergency, unusual, or off-normal as non-reportable.
- (h) Evaluates non-reportable abnormal events or conditions for significance and processes significant nonreportables according to Plant Standard STD-6161, "Nonconformance Reporting."



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 10 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

3.4 Notification

3.4.1 General

- (a) Information is clear and succinct. Abbreviations and site specific jargon is avoided.
- (b) All notifications include:
 - (1) Facility or Responsible Manager point of contact and telephone number.
 - (2) The information in blocks 1 through 19, and block 25 from the PX-1695, "U.S. Department of Energy Occurrence Report" or the ORPS software.
 - (3) Electronically transmitted reports are confirmed by phone to ensure receipt and to document the time of official notification.

NOTE

Classified information, Unclassified Controlled Nuclear Information (UCNI) or classified Occurrence Reports are not entered into the ORPS database.

3.4.2 ¹²The responsible manager:

- (a) Ensures in addition to unclassified ORPS entries, classified versions of Occurrence Reports are placed in distribution using appropriate security protocols within the required time frames of this procedure.
- (b) Makes distribution of the classified version of Occurrences Reports to the following:
 - (1) DOE Facility Representative
 - (2) Program Manager
 - (3) Affected self-assessment groups



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	11 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

- (4) Heads of all field organizations
- (5) EH-1
- (6) EH-33
- (7) DOE Management and Operations (M&O) contractors.

3.4.3 Emergencies

- (a) ¹³ The PSS verbally notifies the following, within 15 minutes after an abnormal event or condition is categorized as an emergency.
 - (1) DOE/AAO Duty Officer or Facility Representative
 - (2) DOE/Albuquerque (DOE/AL) Emergency Operations Center (EOC)
 - (3) DOE/Headquarters (DOE/HQ) EOC.

3.4.4 ¹⁴Unusual Occurrences

- (a) The PSS verbally notifies the following as soon as practical, but in all cases within two hours of categorization as an unusual occurrence.
 - (1) DOE/AAO Duty Officer or Facility Representative
 - (2) DOE/AL EOC
 - (3) DOE/HQ EOC.
- (b) The PSS verbally notifies the following if there is a decrease in the level of safety or worsening of conditions, including upgrading an existing occurrence to an emergency or an unusual occurrence.
 - (1) DOE/AAO Duty Officer or Facility Representative
 - (2) DOE/AL EOC
 - (3) DOE/HQ EOC.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 12 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

3.4.5

¹⁵Off-Normal Occurrences

- (a) The PSS:
- (1) Notifies the DOE/AAO Duty Officer as soon as practical.
 - (2) If the Duty Officer is unavailable, contacts the DOE/AAO Facility Representative.
 - (3) Evaluates existing Occurrence Reports for potential roll-up. See Paragraph 3.7 for criteria for roll-up, and Appendix D for instructions on entering data into the ORPS.
 - (4) Completes notifications as indicated in paragraph 3.4.4 within 2 hours of the upgrade when an off-normal is upgraded to an unusual.

3.4.6

¹⁶Occurrences requiring regulatory agency notification

- (a) The PSS notifies the Legal Department.
- (b) The Legal Department coordinates and advises the Facility or Responsible Manager regarding notifications to regulatory agencies.
- (c) Individual departments with functional responsibilities interface with the Legal Department before making any contacts or notifications to the required agency.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 13 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

3.5 Critique

NOTE

Critiques are conducted to gather facts as needed to evaluate abnormal events or conditions. The decision to conduct a critique is based on the need to determine facts and not on whether the event is reported. For off-normal occurrences and nonreportable events or conditions, the results of the critique may provide all the information necessary and no further causal analysis may be warranted.

3.5.1 ¹⁷The Facility or Responsible Manager consults with the DOE Facility Representative to:

- (a) Initially assess the occurrence, abnormal event, or condition, and
- (b) Establish the need, attendance requirements, and necessary depth of a critique.

NOTE

A list of critique leaders approved by Division Managers is maintained in the Operation Center (OC). This list is developed by the respective Division Managers based on need and the authority, knowledge, skills and abilities of the personnel identified to conduct effective critiques.

3.5.2 The Facility or Responsible Manager:

- (a) Ensures an approved critique leader is assigned to conduct the critique. Based on the nature or significance of the abnormal event or condition, the critique leader assigned has sufficient authority, experience, and knowledge to guide the participants in establishing the associated facts.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE	Page No.	14 of 139
PROCESS AND OCCURRENCE REPORTING	Issue	30
	Date	March 26, 1998
	DOCUMENT	
	SPONSOR:	Internal Audit, Assurance & Qualit Manager

- (b) Convenes a critique as soon as practical, not to exceed two working days from the event identification date.
- (c) Ensures the Division Manager or designee is notified and has provided appropriate review of planned activities for occurrences which are initiall categorized as unusual.

3.5.3

The PSS notifies the following personnel of time and location of critique:

- (a) For all critiques:
 - (1) DOE Duty Officer
 - (2) DOE Facility Representative for the affected facilit
 - (3) IAA&Q
 - (4) Legal Department
 - (5) Personnel (witnesses) involved in the event.
- (b) Specified attendees as determined in paragraph 3.5.1:
 - (1) Nuclear Explosives Safety Department (if nuclear explosives or explosives are involved).
 - (2) Radiation Safety Department (if radiation or radioactive material is involved).
 - (3) IAA&Q Weapons QA Group (if components or assemblies are subject to DOE acceptance are involved).
 - (4) Risk Management Department (if safety envelope of the Facility is involved).
 - (5) Systems Engineering (if a Critical Safety System or component is affected).
 - (6) Industrial Safety Department (if personnel injury or vehicle damage is involved).



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	15 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Quality Manager

- (7) Environmental Protection Department (if environmental protection is jeopardized).
- (8) Waste Operations Department (if radioactive, hazardous or mixed waste is involved).

3.5.4 The Facility or Responsible Manager:

- (a) Performs a Safety Evaluation Screen (SES) for reportable occurrences if required by STD-3014, "Unreviewed Safety Question Process."
- (b) Uses PX-4077, "Critique Activity Checksheet," to prepare for the critique and assist the leader in conducting the critique and collecting pertinent information.
- (c) Assembles appropriate procedures, documents, logs, and other reference materials at the critique location.
- (d) Requests and documents written statement(s) of fact, as applicable, on PX-4079, "Critique Meeting Personal Statement."
- (e) Appoints a critique leader and recorder.
- (f) ¹⁸Prepares and maintains a file of documentation, with record of content, related to the abnormal event or condition until closure of the corrective actions.

3.5.5 The critique leader:

- (a) Uses PX-4077 to prepare and guide or conduct the critique.
- (b) Facilitates the meeting and ensures pertinent information is collected.
- (c) Ensures a critique recorder is assigned.
- (d) ¹⁹Ensures identification of sequence of events, what actually occurred, apparent causes, immediate corrective actions, any additional actions as a result of critique, and lessons learned.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 16 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (e) Ensures actions, responsibilities, and due dates are assigned to finalize:
 - (1) For significant nonreportable events, the Nonconformance Report.
 - (2) For all Occurrences, the Occurrence Report within the 45-day limit, including root cause evaluation (see Paragraph 3.5.7).
 - (3) An Unreviewed Safety Question Determination (USQD), as needed.

3.5.6

The critique recorder:

- (a) Obtains a roster of all critique meeting attendees.
- (b) Generates Critique Meeting Minutes including:
 - (1) List of attendees.
 - (2) Sequence of events.
 - (3) Relevant documents.
 - (4) Meeting discussion summary.
 - (5) Preliminary basic cause of the event.
 - (6) Actions taken or required to address safety issues (include names and completion dates).
 - (7) Actions required to finalize the Occurrence Report (responsibilities and due dates) or Nonconformance Report (NCR), if required.
- (c) Prepares and provides meeting minutes to the DOE/AAO Facility Representative, and the Facility or Responsible Manager (for the Occurrence Report or NCR file) within one working day of the critique.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 17 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

3.5.7 Facility or Responsible Manager:

NOTE

Reference Plant Standard STD-0182, "Root Cause Evaluation," for specific details for conducting root cause analysis.

- (a) Determines the methodology (such as Management Oversight and Risk Tree, fault or success tree analysis, event sequences, REASONS), supporting resources required, and date for completion of root cause analysis for unusual occurrences.
- (b) Determines the extent of any further causal analysis to be performed for off-normal occurrences.
- (c) ²⁰Documents basis for and employs a graded approach based on severity or risk associated with event or condition as appropriate.
- (d) Determines and assigns actions to the division and department responsible for conducting the root cause or causal analysis evaluation, as appropriate.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 18 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

3.6 Notification Report of Occurrence

NOTE

Classified information, UCNI or classified Occurrence Reports are not entered into ORPS database.

In addition to unclassified ORPS entries, classified versions of Occurrence Reports are placed in distribution using appropriate security protocols within the required time frames of this procedure.

Distribution of classified versions of Occurrence Reports includes DOE Facility Representative, Program Manager, affected self-assessment groups, heads of all field organizations, EH-1, EH-33, and DOE M&O contractors.

3.6.1 Facility or Responsible Managers issue the Notification Report by:

- (a) ²¹Entering the information on PX-1695 (Reference Appendix D) or directly into the ORPS software.
- (b) ²²Verifying that an Authorized Derivative Classifier has reviewed the report and has verified that classified or UCNI is not being transmitted through the Occurrence Report.
- (c) ²³Verifying reports containing weapons program information are reviewed by the plant Classification Office.
- (d) Obtaining review and concurrence of the Legal Department.
- (e) ²⁴Entering written information from PX-1695, or the ORPS software, into the ORPS database as soon as practical, but in all cases by the close of the next business day from the time of categorization, not to exceed 80 hours.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 19 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

3.7 Roll-Up Reports

3.7.1 ²⁵Facility or Responsible Manager:

- (a) Prepares a Roll-Up Report to document similar occurrences into non-finalized Occurrence Reports if the following criteria are met:
 - (1) ²⁶Subsequent occurrences have the same root cause code.
 - (2) ²⁷Subsequent occurrences have the same or similar direct or contributing cause(s).
 - (3) ²⁸Preliminary corrective actions for the initial occurrence are expected to correct the same root cause type of failure.
 - (4) Appropriate corrective actions have been added to address direct or contributing causes identified for each new occurrence added to the report.
- (b) ²⁹Obtains DOE/AAO Facility Representative approval to roll up occurrences.
- (c) Ensures that the Facility Representative has obtained agreement from the Office of Transportation, Emergency Management and Analytical Services (EM-76) for Transportation occurrences.
- (d) ³⁰Processes an update to the original Occurrence Report to reflect the new or rolled up occurrence(s) (see Paragraph 3.8 for how to process Update Reports).
- (e) Submits an Update Report followed by the submittal of a new Occurrence Report after the initial roll-up of an occurrence, if the causes and corrective actions are found to be different than originally thought, in order to delete the specific occurrence from the Roll-Up Report.
- (f) Submits a final Roll-Up Report within 90 calendar days from categorization of the first occurrence or when the number of occurrences reported equals 30, whichever occurs first.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 20 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

3.8 Update Reports

3.8.1 ³¹Facility or Responsible Managers:

(a) Generate an Update Report for the following reasons:

(1) There is significant or new information about the occurrence, change in the status of the investigation, or on request from DOE.

- Include recurring consequences or the identification of additional component defects, resulting from the investigation.

(2) ³²A change in categorization, roll-up of additional reports, or DOE rejections, (see Paragraph 3.10).

- Include justification for the new categorization.
- Indicate the number of reports included in a roll-up.

(3) ³³If the required analysis is not completed within 45 calendar days after initial categorization.

- Submit an Update Report within the 45 days.
- Explain the reason for the delay.
- Provide an estimated date for submittal of the Final Report.
- Include this information in Block 24 of PX-1695, or the ORPS software.

(b) Verify that an Authorized Derivative Classifier reviewed the report and verified that classified or UCNI is not being transmitted through the Occurrence Report.

(c) Verify reports containing weapons program information are reviewed by the plant Classification Office.

(d) Obtain review and concurrence of the Legal Department.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 21 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (e) Enter updated information into the ORPS database.
- (f) Transmit the report to the ORPS host database before the close of the next working day from the time of categorization, not to exceed 80 hours.

3.9 Final Reports

3.9.1 ³⁴Corrective Action

- (a) ³⁵Facility or Responsible Manager:
 - (1) Determines root, direct, and contributing causes, and ensures corrective actions required to prevent recurrences are identified. This includes:
 - Reviews adequacy of identification of the causes and corrective actions provided by other departments.
 - Verifies corrective actions address the root and contributing cause(s) for the occurrence.
 - Verifies corrective actions address any generic implications beyond the event itself.
 - Assigns realistic and achievable dates for completion of corrective actions.
 - Ensures corrective action points of contact are identified.
 - (2) Enters actions, responsibilities, and due dates into the plant action tracking system after DOE approval of the Final Report. The corrective actions:
 - Address the significance, nature, and extent of the occurrence.
 - Address the root cause and contributing causes, including precursors and generic implications, if any.
 - Include a schedule itemizing the required actions, completion dates, and responsibilities by department or name.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 22 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

3.9.2

Lessons Learned

- (a) Facility or Responsible Manager:
 - (1) Evaluates the occurrence, abnormal event, or condition to ensure appropriate division or department provides lessons learned.
 - (2) Enters the information in Block 30 of the PX-1695, or directly into the ORPS software when required.
- (b) Operations Support Division:
 - (1) Trends information from Occurrence Reports and issues quarterly reports.
 - (2) Identifies and disseminates lessons learned from other DOE sites.
- (c) IAA&Q reviews information for potential significant trends and issues and makes corrective recommendations to Senior Management.

3.9.3

Facility or Responsible Managers:

- (a) ³⁶Use Appendix D to prepare the final Occurrence Report either on a PX-1695 or in the ORPS software. Review each entry for content and accuracy in accordance with the "Checklist for Occurrence Report Review," Appendix C.
- (b) ³⁷Verify that an Authorized Derivative Classifier reviewed the report and verified that classified or UCNl is not being transmitted through the Occurrence Report.
- (c) ³⁸Verify that reports containing weapons program information are reviewed by the plant Classification Office.
- (d) Obtain review and signature of the Legal Department.
- (e) ³⁹Enter information into the ORPS database as soon as possible, but no later than 45 calendar days after initial categorization for DOE approval.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 23 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (f) ⁴⁰Maintain the current status of Final Report corrective actions in the ORPS database.
- (g) Distribute copy of final ORPS Report to all affected parties and to the Classification Office.

3.9.4 DOE Approval

NOTE

Changes in approved Final Reports (such as corrective action due dates, corrective actions) require revising the report and DOE Facility Representative approval.

- (a) The DOE Facility Representative and Program Manager (for unusual and emergency occurrences only) review the Occurrence Report for finalization.
- (b) The DOE Facility Representative and Program Manager return the Final Report with comments for all reports that are rejected.

3.10 Rejected Reports

3.10.1 The Facility or Responsible Manager:

- (a) ⁴¹Reviews the comments, incorporates comments, or requests assistance from appropriate organizations to assist in resolving comments.
- (b) Submits an action request with due date to responsible organization and enters into FMI if assistance is needed.
- (c) Submits revised Final Report within 21 calendar days from rejection.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 24 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (d) If unable to revise the Final Report within 21 calendar days:
 - (1) Submits an Update Report with an explanation of the delay.
 - (2) Submits a schedule for re-submittal as soon as practical.
 - (3) Includes this information in Block 24 of PX-1695, or the ORPS software.

3.11 Performance Monitoring

- (a) The Legal Department monitors Occurrence Reports and corrective action status for legal liability implications and Price-Anderson Amendment Act applicability.
- (b) IAA&Q:
 - (1) Monitors Occurrence Reports and corrective action status.
 - (2) Reports status of the selected performance measures to the General Manager.

3.12 ⁴²Placement of Final Reports Into Public Reading Rooms

3.12.1 The Classification Office:

NOTE

Some Occurrence Reports may contain classified information and UCNI. Approved Final Occurrence Reports are free of classified information, UCNI, and sensitive information before releasing to public reading rooms.

- (a) Ensures Final Reports for Public Reading Rooms are sanitized, such as names and telephone numbers.

3.12.2 The OC submits reports to the External Affairs Public Information Office.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 25 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- 3.12.3 External Affairs Public Information Office:
- (a) Distributes sanitized copies to the DOE/HQ and local Public Reading Rooms within two weeks of finalization.
 - (b) ⁴³Submits a memo to the DOE Duty Officer, specifying which reports were placed in the local Public Reading Rooms.
- 3.13 Report Closure
- 3.13.1 On completion of corrective actions, responsible organizations:
- (a) Submit evidence of completion to the Facility or Responsible Manager.
 - (1) Includes objective evidence of completion for all unusual and emergency occurrences.
 - (2) Includes a signed statement verifying completion of action for all off-normal occurrences.
 - (b) Submits evidence of completion of Occurrence Reports categorized as emergency or unusual determined to be significant Price-Anderson Amendment Act issues, to IAA&Q for independent validation of completion of corrective actions when required.
- 3.13.2 Facility or Responsible Manager:
- (a) Enters completion dates into ORPS and closes actions in FMI Action Tracking.
 - (b) For off-normal reports:
 - (1) Compiles investigation notes, root cause determination, evidence of corrective action completion, and a copy of the closed report into the Occurrence Report File.
 - (2) ⁴⁴Transmits the Occurrence Report file to the OC for retention.
 - (3) Submits off-normal Occurrence Reports involving PAAA issues, with documentation of corrective action completion, to the Legal Department for determination of Price-Anderson Amendment Act non-compliance closure.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 26 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (c) For emergency and unusual occurrences determined to be significant Price-Anderson Amendment Act issues:
 - (1) Compiles investigation notes, root cause determination, evidence of corrective action completion, and a copy of the closed report into the Occurrence Report File.
 - (2) Transmits the completed file to IAA&Q for validation.

3.13.3

IAA&Q:

- (a) Reviews Occurrence Report files for content and completeness, and validates completion of corrective actions on Unusual & Emergency Occurrences which are determined to be significant Price-Anderson Amendment Act noncompliances.
- (b) ⁴⁵Forwards the validated file to the OC for retention.

4. REFERENCES

4.1

Authorizing Documents

- (a) Policy Directive DIR-0001, "Roles and Responsibilities for the Management and Operation of Pantex Plant"
- (b) DOE O 232.1A, "Occurrence Reporting and Processing of Operations"

4.2

Related Documents

- (a) DOE N 441.1, "Radiological Protection for DOE Activities"
- (b) DOE O 151.1, "Comprehensive Emergency Management System"
- (c) DOE Order 5400.5, "Radiation Protection of the Public and the Environment"
- (d) DOE Order 5480.10, "Contractor Industrial Hygiene Program"
- (e) DOE Order 5484.1, "Environmental Protection, Safety, and Health Protection Information Reporting Requirements"
- (f) DOE Order 5610.11A, "Nuclear Explosive Safety"



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
	Page No.	27 of 139
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

(g)	DOE Order 5632.7A, "Protective Force Program"
(h)	10 CFR Part 71, "Packaging and Transportation of Radioactive Material"
(i)	10 CFR 835, "Occupational Radiation Protection"
(j)	29 CFR 1904, "Recording and Reporting Occupational Injuries and Illnesses"
(k)	29 CFR 1910, "Occupational Safety and Health Act"
(l)	40 CFR 302, "Designation, Reportable Quantities, and Notification"
(m)	40 CFR 355, "Superfund"
(n)	49 CFR 171, "Transportation"
(o)	Plant Standard STD-0182, "Root Cause Evaluation"
(p)	Plant Standard, STD-1950, "Records Management"
(q)	Plant Standard STD-2132, "Drug and Alcohol Abuse Prevention Program"
(r)	Plant Standard STD-2133, "Drug and Alcohol Program for DOT-Covered Employees"
(s)	Plant Standard STD-3014, "Unreviewed Safety Question Process"
(t)	Plant Standard STD-3480, "Suspension of Activities or Operations"
(u)	Plant Standard STD-3550, "Employee Illness or Injury"
(v)	Plant Standard STD-4680, "Classification of Information"
(w)	Plant Standard STD-4686, "Identification and Protection of Unclassified Controlled Nuclear Information (UCNI)"
(x)	Plant Standard STD-6161, "Nonconformance Reporting"
(y)	Plant Standard STD-6216, "Lessons Learned Program"
(z)	Policy Directive DIR-0100, "Management and Operation of Pantex Plant"



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	28 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Quality Manager

- (aa) Pantex Classification Guide
- (bb) List of Active Classification Guides and UCNI Guidelines for Pantex Plant published November 1994, by Pantex Classification Office
- (cc) EPP-1000, "Pantex Plant Emergency Management Plan"
- (dd) EPP-2001, Pantex Plant Emergency Preparedness Plan, "EOC Cadre Guidelines"
- (ee) DOE Secretarial Action memorandum, dated March 17, 1992, ACTION: Placement of Final Occurrence Reports in Local Public Reading Rooms
- (ff) DOE Albuquerque Field Office memorandum, dated April 22, 1992: Placement of Final Occurrence Reports in Local Public Reading Rooms
- (gg) O&I Standard 7-5638.1, "General Safety Requirements for Handling and Transporting Nuclear Explosives, Nuclear Components, and NELAs" /U/
- (hh) O&I Standard 7-5640, "General Safety Requirements for Transporting Nonnuclear Explosives by Motor Vehicle" /U/
- (ii) O&I Standard 7-5080, "Safety Requirements - On-site Transportation of Chemical Explosives, Nuclear Explosives and Weapon Components" /U/
- (jj) MNL-1101, *Pantex Plant Critical Safety Systems Manual*

4.3 Forms

4.3.1 Generated Forms

- (a) PX-1695, "U.S. Department of Energy Occurrence Report"
- (b) PX-4077, "Critique Activity Checksheet"
- (c) PX-4079, "Critique Meeting Personal Statement"

4.3.2 Related Forms

- (a) PX-2584, "Safety Release of Operations/Facilities"
- (b) PX-2629, "Pantex Safety Evaluation Screen"
- (c) PX-2829, "Pantex Plant Nonconformance Report"



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	29 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

5. DEFINITIONS

- (a) Abnormal Event - Something not planned for or out of the ordinary that could be of interest to the plant management.
- (b) Condition - Any as found state, whether or not resulting from an event, which may have adverse safety, health, quality assurance, security, operational or environmental implications.
- (c) Defective Item, Material, or Service - Any item, material, or service that does not meet the commercial standard or procurement requirements as defined in catalogues, proposals, procurement specifications, design specifications, testing requirements, contracts, or the like. It includes those items or services found, during acceptance testing, pre-operational testing, operations, inspections, or audit, not to meet the quality or reliability requirements appropriate to the use or specificity of the item or service procured. It also includes misrepresentation of the specifications or trademarks associated with the parts/service marking, packaging, or certification/identification stamps. It does not include parts or services which fail or are otherwise found to be inadequate because of random failures or errors within the accepted reliability level.
- (d) Discharge - Includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil, but excludes discharges in compliance with a permit under section 402 of the Clean Water Act (CWA), discharges resulting from circumstances identified and reviewed and made a part of the public record with respect to a permit issued or modified under section 402 of the CWA, and subject to a condition in such permit, or continuous or anticipated intermittent discharges from a point source, identified in a permit or permit application under section 402 of the CWA, that are caused by events occurring within the scope of relevant operating or treatment systems.
- (e) DOE/AAO Duty Officer - A senior management official of the Amarillo Area Office, at Pantex Plant, assigned responsibilities during non-duty hours to represent the DOE/AAO and the Area Manager.
- (f) DOE Facility Representative - For each major facility or group of lesser facilities, an individual or designee assigned responsibility by the Head of Field Element or Operations Organization for monitoring the performance of the facility and its operations. This individual is the primary point of contact with the contractor and is responsible to the appropriate Secretarial Officer and Head of Field Element or Operations Organization for implementing the requirements of the DOE M 232.1-1A.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 30 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (g) Emergency - Any occurrence that may endanger or adversely affect people, property, or the environment. Emergencies are grouped into three categories:
- (1) Alert - An event in progress or having occurred which involves an actual or potential substantial reduction of the level of safety of the facility.
 - (2) Site Emergency - An event in progress or having occurred that involves actual or likely major failures of facility functions that are needed for the protection of on-site personnel, the public health and safety, and the environment. Releases off-site of radioactive or other hazardous substances that do not exceed protective action guidelines are occurring or are likely to occur.
 - (3) General Emergency - An event in progress or having occurred that involves actual or imminent substantial reduction of facility safety systems in which off-site releases of radioactive or other hazardous substances are occurring or are expected to occur which exceed protective action guidelines.
- (h) Emergency Response Plan - The Emergency Preparedness Plan documents the description of the overall emergency organization, designation of responsibilities, and procedures for coping with any or all aspects of a potential emergency.
- (i) Environment - Any surface water, ground water, drinking water supply, land or soil surface or subsurface strata, or ambient air. Excluded are site buildings, structures, installations, equipment, pipes or pipelines, or rolling stock that function as effective containment.
- (j) Event - Something significant and real time that happens.
- (k) Facility - Any equipment, structure, system, process, or activity that fulfills a specific purpose. Examples include, storage areas, production or processing plants, radioactive waste processing and disposal system, burial grounds, environmental restoration activities, laboratories, and transportation activities.
- (l) Facility or Responsible Manager - The individual, or designee, usually a contractor, with direct line responsibility for a facility or group of facilities, including authority to direct physical changes to the facility. For purposes of this procedure, a Facility or Responsible Manager may be responsible for a program or activities.
- (m) Federally Permitted Release - Any release that satisfies the definition of "federall permitted release" in 40 CFR 302.3.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 31 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

(n) Hazardous Substance or Material

- (1) Department of Energy Office of Safeguards and Security Hazardous Material. An solid, liquid, or gaseous material that is chemically toxic, flammable, radioactive, or unstable upon prolonged storage, and that exists in quantities that could pose a threat to life, property, or the environment.
- (2) Department of Transportation Hazardous Materials. (See 49 CFR 171.8 and 172.101). A substance or material, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and which has been so designated.
- (3) Comprehensive Environmental Response, Compensation and Liability Act Hazardous Substances (see 40 CFR 302).
- (5) Occupational Safety and Health Administration (OSHA) Hazardous Chemical (see 29 CFR 1910.1000 and 29 CFR 1910.1200). Any chemical which is a physical or a health hazard.
- (6) Superfund Amendments and Reauthorization Act Extremely Hazardous Substances (see 40 CFR 355). These are not defined but appear on a list in Appendix B and C of 40 CFR 355.

(o) Item

- (1) An all-inclusive term used in place of the following: appurtenance, sample, assembly, component, equipment, material, module, part, structure, subassembly, subsystem, system, unit, or support systems, documented concepts, or data.
- (2) When used in reference to nuclear material, a visible, single piece or container of nuclear material with a unique identification and known nuclear material mass.

(p) Lessons Learned - A "good work practice" or innovative approach that is identified and shared, or an adverse work practice or experience that is shared to avoid recurrence.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 32 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (q) Lost Workdays - The number of days (consecutive or not) after, but not including, the day of injury or illness during which the employee was scheduled to have worked but did not do so; that is, was unable to perform all or any part of their normal assignment during all or any part of the workday or shift, because of the occupational injury or illness.
- (r) Member of the Public - Persons who are not occupationally associated with the DOE facility or operations, such as persons whose assigned occupational duties do not require them to enter the DOE site.
- (s) Near Miss Incident or Accident - An incident or accident that had the potential to have caused significant property damage or an insult to the environment.
- (t) Nonreactor Nuclear Facility - Activities or operations that involve radioactive or fissionable materials in a form and quantity that a significant nuclear hazard potentially exists to the employees or the general public. Included are activities or operations that: produce, process or store radioactive liquid or solid waste, fissionable materials, or tritium; conduct irradiated materials inspection, decontamination, or recovery operations; or perform environmental remediation or waste management activities involving radioactive materials. Incidental use and generation of radioactive materials in a facility operation (such as check and calibration sources and X-ray machines) might not ordinarily require the facility to be included in this definition. The application of any rule to a nonreactor nuclear facility is applied using a graded approach.
- (u) Notification Report - The initial documented report to the DOE, of an event or condition that meets reporting criteria of this procedure.
- (v) Nuclear Explosive - Any assembly containing fissionable and/or fusionable materials and main charge high explosive parts or propellants capable of producing a nuclear detonation such as a nuclear weapon or nuclear test device.
- (w) Nuclear Explosive-Like Assembly (NELA) - An assembly that is not a nuclear explosive but that represents a nuclear explosive in its basic configuration (main charge high explosive and pit) and any subsequent level of assembly up to its final configuration, or that represents a weaponized nuclear explosive such as a warhead, bomb, reentry vehicle, or artillery shell. A NELA does not contain an arrangement of high explosive and fissile material capable of producing a nuclear detonation.
- (x) Nuclear Facility - Reactor and nonreactor nuclear facilities.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 33 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (y) Occupational Illness - Any abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment. Includes acute and chronic illnesses or diseases which are caused by inhalation, absorption, ingestion, direct contact, or injection or puncture.
- (z) Occupational Injury - An injury such as a cut, fracture, sprain, or amputation which results from a work related accident or from a single instantaneous exposure in the work environment.
- (aa) Occurrence - An event or a condition that adversely affects, or may adversely affect, DOE, contractor, or subcontractor personnel, the public, property, the environment, or the DOE mission.
- (bb) Occurrence Investigation - Investigations are to be conducted according to site specific procedures and when determined by DOE that a type A or B is required by DOE procedures.
- (cc) Occurrence Report - A written evaluation of an event or condition that is prepared in sufficient detail to enable the reader to assess its significance, consequences, or implications and to evaluate the actions being proposed or employed to correct the condition or to avoid recurrence.
- (dd) Off-Normal Occurrence - A reportable occurrence which is the lowest level of categorization and is less serious in relation to occurrences categorized as "Unusual" or "Emergency." All levels of categorization are determined by the Pantex Plant Site Specific Criteria.
- (ee) Off-site Transportation Event - Movement of materials which are considered to be in commerce (on roads other than those owned or controlled by DOE), thus requiring compliance with Department of Transportation Hazardous Materials Regulations.
- (ff) Oil - Oil of any kind or in any form, including but not limited to petroleum, fuel oil, oil refuse, and oil mixed with wastes other than dredge spoil.
- (gg) On-site Transportation Event - Movements of materials that are not in commerce (i.e., on roads owned or controlled by DOE), thus are transported in accordance with O& Standards 7-5638.1, "General Safety Requirements for Handling and Transporting Nuclear Explosives, Nuclear Components and NELAs"; 7-5640, "General Safety Requirements for Transporting Nonnuclear Explosives by Motor Vehicle"; and 7-5080, "Safety Requirements- On-Site Transportation of Chemical Explosives, Nuclear Explosives and Weapon Components."



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 34 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (hh) Performance Degradation - Degradation of a facility, process, or system that reduces the reliability of critical components of the facility whose loss affects the capability of operation. Performance degradation does not include the temporary loss of a component where identical redundant components are maintained in operation and the minimum authorization basis is not compromised.
- (ii) Plant Shift Superintendent (PSS) - The individual, or designee, responsible for providing a 24-hour watch of the plant safety envelope and providing management continuity during off-shift hours. The PSS assumes responsibility of facilities when Facility or Responsible Managers are not available.
- (jj) Program Manager - The DOE/HQ individual, or designee, designated by and under the direction of a Program Secretarial Officer, who is directly involved in the operation of Pantex Plant, and with signature authority to provide technical direction through the DOE/AL to Pantex Plant.
- (kk) Primary Confinement - Provides confinement of hazardous material to the vicinity of its processing. This confinement is typically provided by piping, tanks, glove boxes, encapsulating material, and the like, along with any off gas systems that control effluent from within the primary confinement.
- (ll) Primary Environmental Monitors - Monitoring equipment required to legally monitor ongoing discharges. In general, this term applies to monitors used closest to the point of discharge to determine if discharges are within specified limits. It also includes an equipment that activates automatically in response to set level signal from such a monitor. It does not include equipment in general area, remediation, or compliance monitoring programs.
- (mm) Release - Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or otherwise disposing of substances into the environment. This includes abandoning or discarding any type of receptacle containing substances in an unenclosed containment structure but does not include permitted containment structures. This excludes releases that are contained within buildings or structures and do not reach the environment as defined above.
- (nn) Reportable Occurrence - Events or conditions which require ORPS report submittal reported according to the criteria defined in Appendix B of this procedure.
- (oo) Reportable Quantity - For any Comprehensive Environment Response Compensation and Liability Act hazardous substance, including radionuclides, and Superfund Amendments and Reauthorization Act Title 3 extremely hazardous substances, with quantities established in 40 CFR part 302 and part 355 respectively, release of which requires notification unless Federally permitted.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD

EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 35 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

NOTE

The Critical Safety Systems Manual (CSSM), MNL-1101 classifies systems in terms of Class A and B based on the DOE Order 232.1 definitions. Until such time as the CSSM is revised and designates systems as safety class, all systems in the CSSM designated as Class A are considered to be Safety Class. In addition, as Safety Analysis Reports (SAR) are revised, systems are being designated safety class. If the systems in the SAR are designated as safety class, these designations are used.

- (pp) Safety Class Structures, Systems, and Components (SAFETY CLASS SSCs) - Nuclear facility systems, structures, or components including primary environmental monitors and portions of process systems, whose failure may adversely affect the environment or safety and health of the public identified by safety analyses.

NOTE

Safety Significant SSC, as used in this Manual, distinguishes a specific category of SSCs other than Safety Class SSCs. Until such time as the CSS and other authorization basis documents are revised and designated as safety significant, all systems designated as Class B are considered Safety Significant. In addition, as Safety Analysis Reports (SAR) are revised, systems are designated safety significant. If the systems in the SAR are designated as safety significant, these designations are used.

- (qq) Safety Significant Structures, Systems, and Components (Safety Significant SSCs) - Nuclear and Non-nuclear facility structures, systems, and components not designated as Safety Class SSCs but whose preventive or mitigative function is a major contributor to defense in depth (such as prevention of uncontrolled material release) and/or worker safety as determined from hazard analysis.
- (rr) Sanitized - Absence or removal of classified or UCNI information.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 36 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

- (ss) Service - The performance of work, such as design, construction, fabrication, inspection, nondestructive examination or testing, environmental qualification, equipment qualification, repair, installation or the like.
- (tt) Significant Degradation - A degradation which prevents a system, piece of equipment, administrative control, etc. from performing its intended safety function.
 - (1) A burned out power indicator light on a piece of radiation monitoring equipment which does not prevent the equipment from detecting elevated radiation levels and alarming as designed is not considered significant degradation.
 - (2) A piece of equipment that is determined to be out of calibration on the non-conservative side (such as an alarm that alarms at a higher value than normal) is a significant degradation.
- (uu) Substantial Safety Hazard - A loss of safety function to the extent that there is a major reduction in the degree of protection provided to public or worker health and safety.
- (vv) Supplier - The organization which furnishes items or services. An all inclusive term used in place of any of the following: vendor, seller, contractor, subcontractor, fabricator, distributor, consultant, or sub-tier suppliers.
- (ww) Transportation Event - Any real time occurrence involving any of the following transportation activities: material classification, packaging, marking, labeling, placarding, shipping paper preparation, loading or unloading, separation or segregation, blocking and bracing, routing, accident reporting and movement of materials. Transportation events with injury(s) may also require reporting in accordance with group 3 criteria.
- (xx) Technical Safety Requirement (TSR) and TSR-Like - Requirements that define the conditions, safe boundaries and the management or administrative controls necessary to ensure the safe operation of a facility, or to reduce the potential risk to the public or workers. A TSR consists of safety limits, operating limits, surveillance requirements, administrative controls, use and application instructions and the basis thereof.
- (yy) Unusual Occurrence - A reportable occurrence which is categorized per the Pantex Plant Site Specific Criteria (see Appendix B) and the occurrence is more significant than the criteria identified in the Off-Normal category and is not an emergency.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	37 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

- (zz) Unreviewed Safety Question (USQ) - An actual or proposed condition or event in which
 - (1) The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety evaluated previously by safety analyses is increased.
 - (2) Possibility for an accident or malfunction of a different type than any evaluated previously by safety analyses is created.
 - (3) The margin of safety defined in the TSR basis is reduced.
- (aaa) Unreviewed Safety Question Determination (USQD) - That record required by DOE Order 5480.21 to document the review of a proposed "change." This document records the scope of the detailed evaluation and the logic for determining whether or not an Unreviewed Safety Question exists.

6. RECORDS

- 6.1 The OC maintains Occurrence Report files, which include:
 - (a) Occurrence Report (PX-1695s or ORPS software printout)
 - (b) PX-4077, "Critique Meeting Checklist"
 - (c) Critique meeting "List of Attendees"
 - (d) PX-4079, "Critique Meeting Personal Statement"
 - (e) Root Cause Analyses Results, Drawings, and any other pertinent investigative information.

7. APPENDICES

- Appendix A "Commitment/Requirement Log"
- Appendix B "Pantex Site Criteria"
- Appendix C "Checklist for Occurrence Report Review"
- Appendix D "ORPS Database Operating Instructions"



MASON & HANGER CORPORATION
PANTEX PLANT

PLANT STANDARD
EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 38 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX A

Commitment/Requirement Log

Procedure Section	Endnote	Source of Commitment/Requirement	Requirement Expert
All		DOE O 232.1A Requirement CRD DOE M 232.1-1A Requirement 5[1] DOE M 232.1-1A Requirement 8 DOE 5480.10 Requirement 9.c.(4)(f) DOE 5610.11 Requirement Ch.X.5	IAA&Q
3.1	1	DOE M 232.1-1A Requirement 5.9	IAA&Q
3.2.1(a)	2	DOE O 151.1 Requirement Att.I.1.(10) DOE M 232.1-1A Requirement 5.1.a DOE 5483.1A Requirement Ch.III.4 DOE 5484.1 Requirement Ch.II.3.a.	Ops. Support IAA&Q ES&H
3.2.1(b)	3	DOE O 151.1 Requirement Att.I.1.(10) DOE M 232.1-1A Requirement 5.1.b	Ops. Support IAA&Q



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 39 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX A (continued)

Commitment/Requirement Log

Procedure Section	Endnote	Source of Commitment/Requirement	Requirement Expert
3.2.1(c)	4	DOE O 151.1 Requirement Att.I.1.(10)	Ops. Support
3.2.2	5	DOE O 151.1 Requirement Att.I.1.(10) <i>DOE M 232.1-1A Requirement 5[3]</i> <i>DOE M 232.1-1A Requirement 5.1.b</i>	Ops. Support <i>IAA&Q</i>
3.2.3(a)	6	<i>DOE O 151.1 Requirement Att.I.1.(10)</i> <i>DOE M 232.1-1A Requirement 5[3]</i> <i>DOE M 232.1-1A Requirement 5.1.b</i>	<i>Ops. Support</i> <i>IAA&Q</i>
3.3.1(a)	7	DOE O 151.1 Requirement Att.I.1.(10) DOE M 232.1-1A Requirement 5.2.[4] DOE M 232.1-1A Requirement 5.3.1.	Ops. Support



MASON & HANGER CORPORATION
PANTEX PLANT

PLANT STANDARD
EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 40 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX A (continued)

Commitment/Requirement Log

Procedure Section	Endnote	Source of Commitment/Requirement	Requirement Expert
3.3.1(b)	8	DOE O 151.1 Requirement Att.I.1.(10) DOE M 232.1-1A Requirement 5.2[1] DOE 5610.11 Requirement Ch.X.2 DOE M 232.1-1A Requirement 5[2] DOE 5400.1 Requirement Ch.II.2.(a) DOE 5400.5 Requirement Ch.II.7	Ops. Support IAA&Q ES&H
3.3.1(c)	9	DOE M 232.1-1A Requirement 5.2[2]	IAA&Q
3.3.1(d)	10	DOE O 151.1 Requirement Att.I.1.(10) DOE M 232.1-1A Requirement 5.2[1] DOE 5610.11 Requirement Ch.X.2	Ops. Support IAA&Q ES&H
3.3.1(e)	11	DOE M. 232.1-1A Requirement 9.2	IAA&Q
3.4.2	12	DOE M 232.1-1A Requirement 6.[1]	IAA&Q



MASON & HANGER CORPORATION
PANTEX PLANT

PLANT STANDARD
EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 41 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX A (continued)

Commitment/Requirement Log

Procedure Section	Endnote	Source of Commitment/Requirement	Requirement Expert
3.4.3(a)	13	DOE M 232.1-1A Requirement 5.3.1 DOE 5610.11 Requirement Ch.X.2 DOE 5610.11 Requirement Ch.X.3	IAA&Q ES&H
3.4.4	14	DOE M 232.1-1A Requirement 5.3.2 DOE 5480.3 Requirement 10.g.(3)[1] DOE 5610.11 Requirement Ch.X.3 DOE 5610.11 Requirement Ch.X.4	IAA&Q ES&H
3.4.5	15	DOE 5610.11 Requirement Ch.X.3	ES&H
3.4.6	16	DOE M 232.1-1A Requirement 5.3	IAA&Q
3.5.1	17	DOE M 232.1-1A Requirement 5.5.a DOE M 232.1-1A Requirement 5.5.c	IAA&Q
3.5.4(f)	18	DOE M 232.1-1A Requirement 5.1.b	IAA&Q



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 42 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX A (continued)

Commitment/Requirement Log

Procedure Section	Endnote	Source of Commitment/Requirement	Requirement Expert
3.5.5(d)	19	DOE 5483.1A Requirement Ch.III.4 DOE 5484.1 Requirement Ch.II.3.a	ES&H
3.5.7(c)	20	DOE M 232.1-1A Requirement 5.5.a	IAA&Q
3.6.1(a)	21	DOE M 232.1-1A Requirement 5.4	IAA&Q
3.6.1(b)	22	DOE M 232.1-1A Requirement 5.3.2.e DOE M 232.1-1A Requirement 6[1]	IAA&Q
3.6.1(c)	23	DOE M 232.1-1A Requirement 5.3.2.e	IAA&Q
3.6.1(e)	24	DOE M 232.1-1A Requirement 5.4[1]	IAA&Q
3.7.1	25	DOE M 232.1-1A Requirement 5.7	IAA&Q
3.7.1(a)(1)	26	DOE M 232.1-1A Requirement 5.7	IAA&Q
3.7.1(a)(2)	27	DOE M 232.1-1A Requirement 5.7.1	IAA&Q
3.7.1(a)(3)	28	DOE M 232.1-1A Requirement 5.7.2	IAA&Q



MASON & HANGER CORPORATION
PANTEX PLANT

PLANT STANDARD
EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 43 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX A (continued)

Commitment/Requirement Log

Procedure Section	Endnote	Source of Commitment/Requirement	Requirement Expert
3.7.1(b)	29	DOE M 232.1-1A Requirement 5.7.1	IAA&Q
3.7.1(d)	30	DOE M 232.1-1A Requirement 5.7.1	IAA&Q
3.8.1	31	DOE M 232.1-1A Requirement 5.5.b	IAA&Q
3.8.1(a)(2)	32	DOE M 232.1-1A Requirement 5.4[2] DOE M 232.1-1A Requirement 5.5.b	IAA&Q
3.8.1(a)(3)	33	DOE M 232.1-1A Requirement 5.6.b	IAA&Q
3.9.1	34	DOE M 232.1-1A Requirement 5.6.a(3)	IAA&Q
3.9.1(a)	35	DOE M 232.1-1A Requirement 5.6.a[2]	IAA&Q
3.9.3(a)	36	DOE M 232.1-1A Requirement 5.6.c.	IAA&Q
3.9.3(b)	37	DOE M 232.1-1A Requirement 5.6.c DOE M 232.1-1A Requirement 6[1]	IAA&Q



MASON & HANGER CORPORATION
PANTEX PLANT

PLANT STANDARD
EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 44 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX A (continued)

Commitment/Requirement Log

Procedure Section	Endnote	Source of Commitment/Requirement	Requirement Expert
3.9.3(c)	38	DOE M 232.1-1A Requirement 5.3.2.e	IAA&Q
3.9.3(e)	39	DOE M 232.1-1A Requirement 5.6.a[1] DOE M 232.1-1A Requirement 5.6.b	IAA&Q
3.9.3(f)	40	DOE M 232.1-1A Requirement 5.6.f	IAA&Q
3.10.1(a)	41	DOE M 232.1-1A Requirement 5.6.c	IAA&Q
3.12	42	DOE M 232.1-1A Requirement 5.8	IAA&Q
3.12.3(b)	43	DOE M 232.1-1A Requirement 5.8	IAA&Q
3.13.2(b)(2)	44	DOE M 232.1-1A Requirement 5.6.g DOE M 232.1-1A Requirement 5.1.b	IAA&Q
3.13.3(b)	45	DOE M 232.1-1A Requirement 5.6.g	IAA&Q



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 45 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B

Pantex Site Criteria

NOTE

Categorization criteria from DOE Manual 232.1A which do not apply to Pantex operations (e.g. reactor operations, defective aircraft components, etc.) are not included in this Site Specific Criteria. Start-up of new processes and facilities require Readiness Assessments and/or Operational Readiness Reviews, at which time applicable requirements, including reporting criteria of DOE Manual 232.1A is identified and included herein.

1. FACILITY CONDITION

(a) Nuclear Criticality Safety

Nuclear Criticality Safety is controlled at Pantex by specifying three types of administrative controls on fissile material: Geometry, number of items out of containers, and prevention of submersion of items in liquids. The specific criticality administrative controls are contained in the authorization basis documentation (Basis for Interim Operation, Safety Analysis Reports, Critical Safety Systems Manual, Nuclear Explosive Safety Studies and Hazards Analysis Reports). Specific exceptions to these generic controls may only be approved by DOE.

(1) UNUSUAL OCCURRENCE

Violation of the double contingency criticality specifications such that no valid controls are available to prevent a criticality accident.

(2) OFF-NORMAL

Any nuclear criticality safety violation or infraction of procedures not covered by other reporting criteria. For example, violation of a single contingency, such that only one valid criticality control remains in place.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 46 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

(b) Fires or Explosions

(1) UNUSUAL OCCURRENCE

- (a) Any fire or explosion within primary confinement or containment boundaries of a nuclear facility.

(2) OFF-NORMAL

- (a) Any fire or explosion, not required to be reported as an UNUSUAL Occurrence, that activates a fire suppression system, or disrupts normal facility operations.
- (b) Any unplanned fire that takes longer than 10 minutes to extinguish following the arrival of fire protection personnel; this does not include fires that do not disrupt normal facility operations and which are in the initial or beginning stages that can be controlled or extinguished by portable fire extinguishers, class II standpipe, or small hose systems without need for protective clothing or breathing apparatus, such as incipient fires within a trash receptacle. An incipient fire is a fire that is contained at the point of origin, such as within a trash receptacle.
- (c) Any fire or explosion within primary confinement or containment boundaries of an explosive facility.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 47 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

- (c) Safety Status Degradation - Any unplanned occurrence that results in the safety status or the authorization basis (Basis for Interim Operation, Safety Analysis Reports, Critical Safety Systems Manual, Nuclear Explosive Safety Studies and Hazards Analysis Reports, Technical Safety Requirements, Operational Safety Requirements, Operational Safety Controls, Nuclear Explosive Safety Requirements) of a facility or process being seriously degraded.

(1) UNUSUAL OCCURRENCE

- (a) Any violation or noncompliance of an approved Technical Specification (Technical Safety Requirement, Operational Safety Control, or Operational Safety Requirement) or other operational safety limit or safety basis limit (explosive, plutonium, uranium or tritium) defined for the nuclear facility by the MHC or DOE.

NOTE

The situation in paragraph 1.b and paragraph 1.e normally arises from the discovery of "new information," "inconsistent as found states," or "operational events." The occurrence is reported under paragraph 2.a or 2.b when the Risk Management Department verifies the discovery and the impact to the safety basis, and determines that the issue requires a USQD. If the USQD results in a positive determination, the occurrence is upgraded using the appropriate paragraph 1.b or 1.e.

- (b) Discovery of an incorrectly derived Technical Safety Requirement (Technical Specification or Operational Safety Requirement) or other operational safety limit defined for the facility by Mason & Hanger Corporation or DOE.
- (c) Any operation outside the authorization basis (Basis for Interim Operation, Safety Analysis Reports, Critical Safety Systems Manual, Nuclear Explosive Safety Studies and Hazards Analysis Reports, Technical Safety Requirements, Operational Safety Requirements, Operational Safety Controls, Nuclear Explosive Safety Requirements) of the facility or process.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 48 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

- (d) Any occurrence that prevents immediate facility or off-site emergency response capabilities.
- (e) The discovery of an actual USQ which reveals a currently existing inadequacy in the approved authorization basis.

(2) OFF-NORMAL

- (a) Discovery of a condition that leads Mason & Hanger or responsible DOE operating personnel to limit facility operations, either self imposed or due to the identification of a potential degradation of the authorization basis (Basis for Interim Operation, Safety Analysis Reports, Critical Safety Systems Manual, Nuclear Explosive Safety Studies and Hazards Analysis Reports, Technical Safety Requirements, Explosives Safety Requirements, Operational Safety Requirements, Operational Safety Controls, Nuclear Explosive Safety Requirements) of a facility or process. This includes the discovery of analytical errors, omissions, or inadequacies that present the potential for an Unreviewed Safety Question (USQ) and that leads Mason & Hanger or responsible DOE operating personnel to limit facility operations.

NOTE

When the Risk Management Department USQ evaluator determines that a safety evaluation is positive (a USQ exists), the occurrence is upgraded to an unusual occurrence.

- (b) Discovery of a potential USQ that affects the present or future operation of the facility. Routine USQ determinations due to planned system or operational modifications are not reportable under this criteria.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 49 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX B (continued)

Pantex Site Criteria

(d) Loss of control of radioactive material or spread of radioactive contamination

(1) UNUSUAL OCCURRENCE

- (a) Identification of radioactive contamination off-site in excess of 100 times any of the surface contamination levels specified in Table I.D.1 that has not been previously identified and formally documented.
- (b) Loss of accountability of a sealed source or identification of lost radioactive material which exceeds 100 times the quantities specified in Table I.D.2.
- (c) Any fissile material in a process or nonprocess system outside primary confinement boundaries not designed or expected to accommodate such material.

(2) OFF-NORMAL

NOTE

Releases of radioactive liquid or contamination occurring in designated contamination areas and expected and provided for in the Radiation Work Permit, are not reportable under this criteria.

- (a) Any unplanned spill of liquids in excess of one gallon, contaminated with radioactive material in concentrations greater than five times the values listed in Table I.D.3.
- (b) Identification of radioactive contamination outside a radiological area or radiological buffer area established for contamination control but within a Controlled Area that is in excess of the levels in Table I.D.4.
- (c) Identification of radioactive contamination on-site that is not located within a Controlled Area, Fixed Contamination Area, or Soil Containment Area, and is in excess of the levels in Table I.D.5.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 50 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

- (d) Identification of radioactive contamination off-site in excess of any of the surface contamination levels specified in Table I.D.1, that has not been previously identified and formally documented.
- (e) Loss of accountability of a sealed source or identification of lost radioactive material which exceeds ten times and is less than or equal to 100 times the quantities specified in Table I.D.2.
- (f) Loss of accountability of a sealed source or identification of lost radioactive material which is one to ten times the quantities specified in Table I.D.2.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 51 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

TABLE I.D.1
Surface Contamination Guidelines

Allowable Total Residual Surface Contamination (dpm/100cm ²) ^{1/}			
Radionuclides ^{2/}	Average ^{3/ 4/}	Maximum ^{4/ 5/}	Removable ^{4/ 6/}
Group 1: Transuranics, I-125, I-129, Ra-226, Ac-227, Ra-228, Th-228, Th-230, Pa-231	100	300	20
Group 2: Th-Natural, Sr-90, I-126, I-131, I-133, Ra-223, Ra-224, U-232, Th-232	1,000	3,000	200
Group 3: U-Natural, U-235, U-238, and associated decay product, alpha emitters.	5,000	15,000	1,000
Group 4: Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above. ^{7/}	5,000	15,000	1,000
Tritium (applicable to surface and subsurface) ^{8/}	N/A	N/A	1,000

^{1/}As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instruments.

^{2/}Where surface contamination by both alpha and beta-gamma-emitting radionuclides exists, the limits established for alpha- and beta-gamma-emitting radionuclides apply independently.

^{3/}Measurements of average contamination is not averaged over an area of more than 1 ². For objects of less surface area, the average is derived for each such object.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 52 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

⁴The average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters does not exceed 0.2 mrad/h and 1.0 mrad/h, respectively, at 1 cm.

⁵The maximum contamination level applies to an area of not more than 100 c².

⁶The amount of removable radioactive material per 100 square centimeters of surface area is determined by swiping the area with dry filter or soft absorbent paper while applying moderate pressure and then assessing the amount of radioactive material on the swipe with appropriate instrument of known efficiency. For objects with a surface area less than 100 square centimeters, the entire surface is swiped, and the activity per unit area is based on the actual surface area. Except for transuranics, Ra-228, Ac-227, Th-228, Th-230, Pa-231 and alpha emitters, swiping techniques are not necessary to measure removable contamination levels if direct scan surveys indicate that the total residual contamination levels are below the values for removable contamination.

⁷This category of radionuclides includes mixed fission products, including the Sr-90 which is present. It does not apply to Sr-90 which has been separated from the other fission products or mixtures where the Sr-90 is enriched.

⁸Property recently exposed or decontaminated should have measurements (smears) at regular time intervals to ensure that there is not a build-up of contamination over time. Because tritium typically penetrates material it contacts, the surface guidelines in Group 4 are not applicable to tritium. The Department has reviewed the analysis conducted by the Tritium Surface Contamination Limits Committee ("Recommended Tritium Surface Contamination Release Guides," February 1991), and has assessed potential doses associated with the release property containing residual tritium. The Department recommends the use of the stated guideline as an interim value for removable tritium. Measurements demonstrating compliance of the removable fraction of tritium on surfaces with this guideline are acceptable to ensure that non-removable fractions and residual tritium in mass will not cause exposures that exceed DOE dose limits and constraints.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 53 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

TABLE I.D.2
(Equivalent to values in DOE Notice 441.2)

Less than 300 micro curie

H-3	Be-7	C-14	S-35	Ca-41	Ca-45	V-49	Mn-53
Fe-55	Ni-59	Ni-63	As-73	Se-79	Rb-87	Tc-99	Pd-107
Cd-113	In-115	Te-123	Cs-135	Ce-141	Gd-152	Tb-157	Tm-171
Ta-180	W-181	W-185	W-188	Re-187	Tl-204		

Less than 30 micro curie

Cl-36	K-40	Fe-59	Co-57	Se-75	Rb-84	Sr-85	Sr-89
Y-91	Zr-95	Nb-93	Nb-95	Tc-97	Ru-103	Ag-105	In-114
Sn-113	Sn-119	Sn-121	Sn-123	Te-123	Te-125	Te-127	Te-129
I-125	La-137	Ce-139	Pm-143	Pm-145	Pm-147	Sm-145	Sm-151
Eu-149	Eu-155	Gd-151	Gd-153	Dy-159	Tm-170	Yb-169	Lu-173
Lu-174	Lu-174	Hf-175	Hf-181	Ta-179	Re-184	Re-186	Ir-192
Pt-193	Au-195	Hg-203	Pb-205	Np-235	Pu-237		

Less than 3 micro curie

Be-10	Na-22	Al-26	Si-32	Sc-46	Ti-44	Mn-54	Fe-60
Co-56	Co-58	Co-60	Zn-65	Ge-68	Rb-83	Y-88	Zr-88
Zr-93	Nb-94	Mo-93	Tc-95	Tc-97	Tc-98	Ru-106	Rh-101
Rh-102	Rh-102	Ag-108	Ag-110	Cd-109	Sn-126	Sb-124	Sb-125
Te-121	I-129	Cs-134	Cs-137	Ba-133	Ce-144	Pm-144	Pm-146



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 54 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

TABLE I.D.2 (con't)
(Less than 3 micro curie)

Pm-148	Eu-148	Eu-150	Eu-152	Eu-154	Gd-146	Tb-158	Tb-160
Ho-166	Lu-176	Lu-177	Hf-172	Ta-182	Re-184	Os-185	Os-194
Ir-192	Ir-194	Hg-194	Pb-202	Bi-207	Bi-210	Cm-241	

Less than 0.3 micro curie

Sr-90	Cd-113	La-138	Hf-178	Hf-182	Po-210	Ra-226	Ra-228
Pu-241	Bk-249	Es-254					

Less than 0.03 micro curie

Sm-146	Sm-147	Pb-210	Np-236	Cm-242	Cf-248	Fm-257	Md-258
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Less than 0.003 micro curie

Gd-148	Th-228	Th-230	U-232	U-233	U-234	U-235	U-236
U-238	Np-237	Pu-236	Pu-238	Pu-239	Pu-240	Pu-242	Pu-244
Am-241	Am-242	Am-243	Cm-243	Cm-244	Cm-245	Cm-246	Cm-247
Bk-247	Cf-249	Cf-250	Cf-251	Cf-252	Cf-254		

Less than 0.0003 micro curie

Ac-227	Th-229	Th-232	Pa-231	Cm-248	Cm-250		
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MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 55 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

TABLE I.D.3

NOTE

Consult DOE Order 5400.5, Radiation Protection of the Public and the Environment, 2-8-90, Figure III-1 for values of radionuclides not listed above.

Derived Concentration Guides (DCG) in Water (DOE Order 5400.5)	
Radionuclide	DCG in Water (uCi/ml)
Americium-241	3×10^{-8}
Cesium-137	3×10^{-6}
Plutonium-238	4×10^{-8}
Plutonium-239	3×10^{-8}
Strontium-90	1×10^{-6}
Thorium-228	4×10^{-7}
Thorium-232	5×10^{-8}
Tritiated Water	2×10^{-3}
Uranium-235	6×10^{-7}
Uranium-238	6×10^{-7}



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 56 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

NOTES

1. The values in Table I.D.4 apply to radioactive contamination deposited on, but not incorporated into the interior of the contaminated item. Where contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for the alpha- and beta-gamma-emitting nuclides apply independently.
2. The amount of removable radioactive material per 100 square centimeters of surface area is determined by swiping the area with dry filter or soft absorbent paper while applying moderate pressure and then assessing the amount of radioactive material on the swipe with appropriate instrument of known efficiency. For objects with a surface area less than 100 square centimeters, the entire surface is swiped, and the activity per unit area is based on the actual surface area. Except for Transuranics, Ra-228, Ac-227, Th-228, Th-230, Pa-231 and alpha emitters, it is not necessary to use swiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual contamination levels are below the values for removable contamination.
3. The levels may be averaged over 1 square meter provided the maximum activity in any area of 100 square centimeters is less than three times the values in Pantex Radcon Manual Table 2-3. (10 CFR 835 Appendix D, Footnote 3).
4. No tritium levels are specified in 10 CFR 835, Appendix D. For tritium, report contaminations in excess of $10 \times 10,000 \text{ dpm}/100 \text{ cm}^2$.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 57 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

TABLE I.D.4

Contamination in RADIOLOGICALLY CONTROLLED AREAS but OUTSIDE A CONTAMINATION AREA in excess of the following values (dpm/100 square cm) (Equivalent to 10 Times - PANTEX RADCON Manual, Table 2-3 and 10 CFR 835, Appendix D values)		
Nuclide (See Note 1)	Removable (See Note 2)	Total (Fixed + Removable) (See Note 3)
U-natural, U-235, U-238 and associated deca products	10,000 alpha	50,000 alpha
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-129	200	5,000
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-125, I-126, I-131, I-133	2,000	10,000
Beta-gamma emitters (nuclides with decay modes other than alpha emission and spontaneous fission) except Sr-90 and other noted above. Includes mixed fission products containing Sr-90.	10,000 beta-gamma	50,000 beta-gamma
Tritium, organic compounds, surfaces contaminated by HT, HTO and metal tritide aerosols (See note 4)	100,000	100,000



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 58 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

NOTES

1. The values in this Table I.D.5 apply to radioactive contamination deposited on, but not incorporated into the interior of the contaminated item. Where contamination by both alpha and beta-gamma-emitting nuclides exists, the limits established for the alpha and beta-gamma emitting nuclides apply independently.
2. The amount of removable radioactive material per 100 square centimeters of surface area is determined by swiping the area with dry filter or soft absorbent paper while applying moderate pressure and then assessing the amount of radioactive material on the swipe with appropriate instrument of known efficiency. For objects with a surface area less than 100 square centimeters, the entire surface is swiped, and the activity per unit area is based on the actual surface area. Except for Transuranics, Ra-228, Ac-227, Th-228, Th-230, Pa-231 and alpha emitters, it is not necessary to use swiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual contamination levels are below the values for removable contamination.
3. The levels may be averaged over 1 square meter provided the maximum activity in any area of 100 square centimeters is less than three times the values in Pantex Radcon Manual Table 2-3. (10 CFR 835 Appendix D, Footnote 3)
4. No tritium levels are specified in 10 CFR 835, Appendix D. For tritium, report contaminations in excess of the values provided.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 59 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

TABLE I.D.5

Contamination OUTSIDE A CONTROLLED AREA but WITHIN THE SITE BOUNDAR in excess of the following values (dpm/100 square cm) (Equivalent to 2 Times-Pantex Radcon Manual, Table 2-3 and 10 CFR 835, Appendix D values)		
Nuclide (See Note 1)	Removable (See Note 2)	Total (Fixed + Removable) (See Note 3)
U-natural, U-235 and associated decay products	2,000 alpha	10,000 alpha
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	40	1,000
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I- 131, I-133	400	2,000
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr- 90 and others noted above. Includes mixed fission products containing Sr-90	2,000 beta-gamma	10,000 beta-gamma
Tritium, including organic compounds, HT, HTO and metal tritides (See note 4)	20,000	20,000



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 60 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

NOTE

A deficiency such that a structure, system or component (SSC) vital to safety or program performance does not conform to stated criteria and cannot perform its intended function is not considered a reportable occurrence provided the TSR and TSR-like action statements are followed. Failure either to work continuously to restore a system to operability or to change the mode of the facility, if required, to one in which the system is not required results in reportability.

(e) Safety Structure/System/Component Degradation

(1) UNUSUAL OCCURRENCE

- (a) Performance degradation of any Safety Class SSC that prevents satisfactory performance of the design function when it is required to be operable or in operation.

(2) OFF-NORMAL

- (a) Performance degradation of any Safety Class SSC that prevents satisfactory performance of its design function when it is not required to be operable or in operation.
- (b) Performance degradation of any nuclear or nonnuclear Safety Significant SSC that prevents satisfactory performance of its design function when it is required to be operable or in operation.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 61 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX B (continued)

Pantex Site Criteria

(f) Violation/Inadequate procedures

(1) UNUSUAL OCCURRENCE

- (a) Maintenance performed on Safety Class SSC without meeting the required plant conditions for nonavailability resulting in a performance degradation.
- (b) Incorrect maintenance (including calibration) on or unauthorized modifications to Safety Class SSC that was required to be operable or in operation and results in a performance degradation.

(2) OFF-NORMAL

- (a) Any procedural violation resulting in actual equipment damage in excess of \$10,000.
- (b) Use of inadequate procedures, or deviation from written procedures that establish or maintain facility conditions or operations that result in adverse effects on performance, safety, or reliability.
- (c) Incorrect maintenance (including calibration) on or unauthorized modifications to Safety Significant SSC required to be operable or in operation.

(g) Oversight Activities

(1) UNUSUAL OCCURRENCE

- (a) Any internal or external oversight activity discovering unsatisfactor operation, testing, maintenance or modification, of any Safety Class SSC that is required to be operable or in operation.

(2) OFF-NORMAL

- (a) Any internal or external oversight activity discovering unsatisfactor operation, testing, maintenance or modification of any Safety Significant SSC required to be operable or in operation.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 62 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

(h) Operations

Criteria listed below contain potential occurrences applicable to the Pantex Plant.

(1) UNUSUAL OCCURRENCE

- (a) Actuation of Safety Class SSCs or alarms resulting from an actual unsafe condition. Inadvertent alarms are not required to be reported unless an actuation of a Safety Class SSC (e.g., fire suppression system) occurs and the actuation is considered significant as defined by approved facility procedures. Actuation of continuous air monitoring systems identified as Safety Class equipment is not reported if actuation was due to radon-thoron effects or actuation is expected due to maintenance tasks and other planned operations in the facility where the potential for release of radioactivity is anticipated to occur and the workers are appropriately protected.
- (b) Loss of incoming AC power and a failure of any backup or emergency power system supplying power to Safety Class SSC (e.g., High Pressure Fire Loop (HPFL) and Blast Door Interlock (BDI) systems).

NOTE

Disruption of plant operations because of unsafe travel conditions is not considered serious unless safety of facilities is also in question.

- (c) Weather conditions or natural phenomenon causing serious disruption of facility activities.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 63 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

- (d) Loss of process ventilation system serving a confinement function, which results in the loss of confinement.
- (e) Any facility evacuation (excluding office space) in response to an actual occurrence, not including a precautionary evacuation for an event which can be controlled and mitigated by employees or maintenance personnel assigned to the affected facility or activity.

(2) OFF-NORMAL

- (a) Any unplanned and unexpected change in a process condition or variable adversely affecting safety, security, environment or health protection performance sufficient to require termination of a procedure in a nuclear explosive facility.

NOTE

Electrical outages, caused by severe weather conditions which disrupt power supplied to the plant, need not be reported if there is no major impact and all equipment such as UPS and diesel backup power operates satisfactorily.

- (b) Any unplanned electrical outages or unexpected consequences from a planned outage which seriously disrupt normal operations of a facility and/or may prevent the facility from meeting approved operating goals.
- (c) Any unplanned outages of service systems (e.g., steam, phones, communications systems, classified mainframe computer) or unexpected consequences from a planned outage which:
 - (1) Disrupt normal operations of a facility for one week or longer.
 - (2) Which adversely affect safety, security environment or health protection performance.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	64 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX B (continued)

Pantex Site Criteria

- (d) Loss of any process ventilation system serving a confinement function which does not result in a loss of confinement.
- (e) Actuation of Safety Significant SSC alarms resulting from an actual unsafe condition. Inadvertent or false alarms are not reported. Actuation of continuous air monitoring systems identified as Safety Significant Components are not reported if actuation was due to a spurious alarm verified by Radiation Safety, due to radon-thoron effects on the system, or due to maintenance tasks and other planned operations in the facility where the potential for release of radioactivity is anticipated to occur and the workers are appropriately protected.

2. ENVIRONMENTAL

(a) Radionuclide Releases

(1) UNUSUAL OCCURRENCE

- (a) Release of radioactive material that violates environmental requirements in federal permits, federal regulations, DOE directives, or state permits.
- (b) Any release that is not an emergency as defined in DOE 0 151.1 which requires immediate reporting (less than four hours) to federal regulator authorities or the Texas Department of Health - Bureau of Radiation Control. Release of a radioactive material that exceeds a federal permitted release by the amount of a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Reportable Quantity or, where no federally permitted release exists, the release exceeds the reportable quantity or triggers specific action levels for an outside federal agency or TNRCC.

(2) OFF-NORMAL

- (a) Any release of radioactive material to controlled or uncontrolled areas that is not part of a normal monitored release and exceeds 50 percent of a Comprehensive Environmental Response, Compensation and Liability Act reportable quantity specified for such material per 40 CFR 302.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	65 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX B (continued)

Pantex Site Criteria

- (b) Any controlled release of radioactive material that occurs as a monitored part of normal operations which exceeds what historical data and/or analysis show is expected as a result of normal operations.
 - (c) Any monitored facility or site boundary where exposure or concentrations of radionuclides exceed what historical data and/or analysis show is expected as a result of normal operations.
 - (d) Any detection of a radionuclide in a sanitary or storm sewer, waste or process stream, or any holding points where such a material is not expected.
 - (e) Any controlled, uncontrolled, or accidental release which is not classified as an Unusual Occurrence but is reported in writing to state or local agencies in a format other than routine periodic reports.
- (b) Release of hazardous substances or regulated pollutants or oil
- (1) UNUSUAL OCCURRENCE
- (a) Release of a hazardous substance or regulated pollutant that exceeds a Comprehensive Environmental Response, Compensation and Liability Act Reportable Quantity per 40 CFR 302 and 40 CFR 355 for chemicals and extremely hazardous substances.
 - (b) Any release that is not an emergency as defined by DOE Order 151.1, but requires immediate (less than 4 hours) reporting to federal regulatory agencies, or the Texas Natural Resource Conservation Commission (TNRCC), or triggers specific action levels for an outside federal agency.
 - (c) Any discharge of 100 gallons or more of oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 66 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

(2) OFF-NORMAL

- (a) Release of a hazardous substance or regulated pollutant to controlled or uncontrolled areas that is not part of a normal, monitored release and exceeds 50 percent of a Comprehensive Environmental Response, Compensation and Liability Act reportable quantity as specified for such material per 40 CFR 302.
- (b) Any discharge of greater than 42 gallons of oil of any kind or in any form, including but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil outside of a permitted containment area.
- (c) Any detection of a toxic or hazardous substance in a sanitary or storm sewer, waste or process stream, or any holding points where such a material is not expected to be found considering the current detection method and historical detection method used.
- (d) Any controlled, uncontrolled, or accidental release which is not classified as an Unusual Occurrence but is reported in writing to state or local agencies in a format other than routine periodic reports.
- (e) Any controlled release of hazardous or regulated material that occurs as a monitored part of normal operations which exceeds historical data and/or analysis is expected as a result of normal operations.
- (f) Any general environmental monitoring where concentration of hazardous or regulated material increases to a level which exceeds what historical data and/or analysis shows is expected as a result of normal operations.

(c) Hazardous Material Contamination

(1) UNUSUAL OCCURRENCE

- (a) Discovery of on-site or off-site contamination due to DOE operations which does not represent an immediate threat to the public, but exceeds a reportable quantity for such materials per 40 CFR 302.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	67 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Quality Manager

APPENDIX B (continued)

Pantex Site Criteria

- (b) Any discovery of groundwater contamination due to DOE operations that is not part of an existing plume previously identified in either an annual report or in any Comprehensive Environmental Response, Compensation and Liability Act or Resource Conservation and Recovery Act activity or report.
- (2) OFF-NORMAL
 - (a) Discovery of on-site contamination due to DOE operations that exceeds 50 percent of a reportable quantity for such material per 40 CFR 302.
- (d) Ecological resources
 - (1) UNUSUAL OCCURRENCE
 - (a) Any occurrence causing significant impact to any ecological resource for which the DOE is a trustee (i.e., destruction of a critical habitat, damage to a historic or archeological site, damage to wetlands, etc.).
 - (2) OFF-NORMAL
 - None specified
- (e) Environmental Agreement or compliance activities
 - (1) UNUSUAL OCCURRENCE
 - (a) Any occurrence under any agreement or compliance area that requires notification of an outside regulatory agency within 4 hours or less, or triggers an outside regulatory agency action.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 68 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

(2) OFF-NORMAL

- (a) Any agreement, compliance, remediation, or permit-mandated activity for which formal notification of enforcement is received from the relevant regulatory agency that a site or facility is considered to be in noncompliance with a schedule or requirement (e.g., Notice of Noncompliance, Finding of Alleged Violations, Warning Letters, Notice of Violation, Notice of Deficiency, Notice of Intent to Sue, and other types of enforcement actions).
- (b) Any occurrence under any agreement or compliance area that is reported to outside agencies in a format other than routine periodic reports.

3. PERSONNEL SAFETY

(a) Occupational Illness or Injuries

(1) UNUSUAL OCCURRENCE

- (a) Any occurrence due to DOE operations resulting in a fatality or terminal injury or illness.
- (b) Any single occurrence resulting in three or more lost workday cases as defined by 29 CFR 1904.12 and OMB NO. 1200-0029.
- (c) Any occurrence requiring in-patient hospitalization of three or more personnel or has a high probability of resulting in a permanent disability.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE	Page No.	69 of 139
PROCESS AND OCCURRENCE REPORTING	Issue	30
	Date	March 26, 1998
	DOCUMENT	
	SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX B (continued)

Pantex Site Criteria

- (d) Personnel exposures to sufficient levels of hazardous substances or hazards that require the administration of medical treatment on the same day as the exposure and are above limits established by the Occupational Safety and Health Administration (refer to 29 CFR 1910) or American Conference of Governmental Industrial Hygienist (ACGIH), whichever is lower. These should include:

Noise
Non-ionizing radiation
Chemical Agents
Physical Agents
Biological Agents

- (e) Exposures to an immediately dangerous to life and health (IDLH) (as defined by 29 CFR 1910.120) condition without both appropriate personal protective equipment and procedures in place.

(2) OFF-NORMAL

- (a) Any occupational illness or injury that results in inpatient hospitalization.
- (b) Any series of occupational illnesses from a single occurrence involving three or more people, with at least one lost work day case.
- (c) Personnel exposure in a single event to hazardous substances or hazards in excess of limits, as established by the Occupational Safety and Health Administration.

Administration (refer to 29 CFR 1910), or American Conference of Governmental Industrial Hygienists (ACGIH), whichever is lower. These should include:

Noise
Non-ionizing radiation
Chemical Agents
Physical Agents
Biological Agents



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 70 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

(b) Vehicular Incidents

This section covers vehicular transportation incidents, including DOE or DOE contractor operated aircraft. Group VI is also considered in categorization for reporting. Transportation incidents without injury (e.g., those involving hazardous or radioactive material or financial loss) are reported per the requirements of Group VI or Group VII.

(1) UNUSUAL OCCURRENCE

- (a) Any vehicular incident resulting in fatality(s), injury(s), or illness classified under Group III, Section A - Unusual Occurrence requirements.
- (b) Any vehicular incident involving Departmental property with a fatality(s) to a person(s) other than DOE personnel or Mason & Hanger/Battelle personnel and subcontractors.

(2) OFF-NORMAL

- (a) Any vehicular incident with injury(s) involving DOE property resulting in a lost workday case.
- (b) Any vehicular incident involving DOE property with injury(s) to a person(s) other than DOE personnel or Mason & Hanger/Battelle personnel and subcontractors.

(c) Safety concerns

(1) UNUSUAL OCCURRENCE

None specified

(2) OFF-NORMAL

- (a) Unapproved use of flammable, toxic, explosive, corrosive, or other unsafe or dangerous processes, chemicals, materials, or methods not in accordance with standard operating procedures or work plans.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 71 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

- (b) Any shutdown of a work activity taken as a result of an Occupational Safety and Health Administration violation (e.g., trenching without adequate shoring or working at elevated levels without fall protection when required).
- (c) Open fires on-site which extend beyond fire barriers.
- (d) Use of inadequate, or deviation from, written procedures that control explosives operations which result in adverse effects on performance, safety, or reliability.

4. PERSONNEL RADIATION PROTECTION

NOTE

The tables selected for inclusion in this section were verified to be consistent with the DOE Orders/CFRs. Use of the Pantex Radiological Control Manual is for convenience and is appropriately end-noted to assure continued consistency with any revision to the manual and DOE Orders/CFRs.

(a) Radiation exposure

Unless specified otherwise, all doses specified in the following requirements are calculated as the total effective dose equivalent, which is the sum of the committed effective dose equivalent due to radionuclides taken into the body (internal exposure) and the effective dose equivalent due to external exposure.

(1) UNUSUAL OCCURRENCE

- (a) Determination of a dose that exceeds the limits specified in Table IV.A.1, (for on-site exposure) or DOE 5400.5, Chapter II, Section 1 (for off-site exposures to a member of the public).



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 72 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

(2) OFF-NORMAL

- (a) Any single occupational exposure that exceeds an expected exposure b 100 mrem.
- (b) A single unplanned exposure on-site to a minor or member of the public that exceeds 50 mrem.
- (c) Determination of a dose that exceeds the limits specified in DOE 5400.5, Chapter II, Section 7, for off-site exposures to a member of the public.

(b) Personnel contamination

(1) UNUSUAL OCCURRENCE

- (a) Any single occurrence resulting in the contamination of five or more personnel and/or clothing (excluding protective clothing) measured in accordance with the DOE Radiological Controls Manual, Article 338 or equivalent (prior to washing or decontamination) at a level exceeding Table IV.B.1 values for total contamination limits. The contamination level is based on direct measurement and not averaged over any area.
- (b) Any occurrence requiring off-site medical assistance for contaminated personnel.
- (c) Identification of personnel or clothing contamination off-site due to DOE operations in accordance with approved radiological procedures for determining personnel and/or clothing contamination, measured (prior to washing or decontamination) in accordance with the DOE Radiological Control Manual, Article 338, or equivalent.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE	Page No.	73 of 139
PROCESS AND OCCURRENCE REPORTING	Issue	30
	Date	March 26, 1998
	DOCUMENT	
	SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX B (continued)

Pantex Site Criteria

(2) OFF-NORMAL

- (a) Any measurement of personnel or clothing contamination (excluding protective clothing), measured in accordance with the DOE Radiological Controls Manual, Article 338 or equivalent (prior to washing or decontamination) at a level equal to or exceeding five times the Table IV.B.1 values for total contamination limits. The contamination level is based on direct measurement and not averaged over any area.
- (b) Any measurement of personnel or clothing contamination (excluding protective clothing), measured in accordance with the DOE Radiological Controls Manual, Article 338 or equivalent (prior to washing or decontamination) at a level exceeding, but less than five times the Table IV.B.1 values for total contamination limits. The contamination level is based on direct measurement and not averaged over any area.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 74 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX B (continued)

Pantex Site Criteria

NOTES

1. Internal dose to the whole body is calculated as committed effective dose equivalent. The committed effective dose equivalent is the resulting dose committed to the whole body from internally deposited radionuclides over a 50-year period after intake. See Appendix 2B of Pantex Radcon Manual for the weighting factors to be used in converting organ dose equivalent to effective dose equivalent for the whole-body dose. (10 CFR 835.203(b)).
2. The annual limit of exposure to "any organ or tissue" is based on the committed dose to that organ or tissue resulting from internally deposited radionuclides over a 50-year period after intake plus an external effective dose equivalent to that organ during the year.
3. Background, therapeutic and diagnostic medical radiation, and voluntary participation in medical research programs exposures are not included in either personnel radiation dose records or assessment of dose against the limits in Table IV.A.1. (10 CFR 835.202(c)).
4. See Appendix 2C of the Pantex Radcon Manual for guidance on nonuniform exposure of the skin.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 75 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

TABLE IV.A.1

SUMMARY OF DOSE LIMITS
(Pantex Radcon Manual Table 2-2)
(DOE Radiological Controls Manual Table 2-1)

TYPE OF EXPOSURE	ANNUAL LIMIT
Radiation Worker*: Total Effective Dose Equivalent	5 rem
Radiation Worker*: Lens of Eye	15 re
Radiation Worker*: Extremity (hands and arms below the elbow; feet and legs below the knees)	50 re
Radiation Worker*: Any organ or tissue (other than lens of eye) and skin	50 re
Declared Pregnant Worker: Embryo or Fetus (10 CFR 835.206(a))	0.5 rem per gestation period
Minors and Students (under age 18): Total Effective Dose Equivalent (10 CFR 835.207)	0.1 rem
Visitors** and Public: Total Effective Dose Equivalent (10 CFR 835.208)	0.1 rem

* Radiation Workers are employees authorized unescorted access to radiological areas per Articles 332, 334, and 335 of the Pantex Radcon Manual.

** Applies to visitors who have not completed training in accordance with Articles 632 or 633 or have not met the special considerations of Article 657 of the Pantex Radcon Manual.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 76 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

NOTES

1. The values in Table IV.B.1 apply to radioactive contamination deposited on, but not incorporated into the interior of the contaminated item. Where contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for the alpha- and beta-gamma-emitting nuclides apply independently.
2. The amount of removable radioactive material per 100 square centimeters of surface area is determined by swiping the area with dry filter or soft absorbent paper while applying moderate pressure and then assessing the amount of radioactive material on the swipe with appropriate instrument of known efficiency. For objects with a surface area less than 100 square centimeters, the entire surface is swiped, and the activity per unit area is based on the actual surface area. Except for Transuranics, Ra-228, Ac-227, Th-228, Th-230, Pa-231 and alpha emitters, it is not necessary to use swiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual contamination levels are below the values for removable contamination.
3. The levels may be averaged over 1 square meter provided the maximum activity in any area of 100 square centimeters is less than three times the values in Pantex Radcon Manual Table 2-3. (10 CFR 835 Appendix D, Footnote 3)
4. No tritium levels are specified in 10 CFR 835, Appendix D. For tritium, report contaminations exceeding 10,000 dpm/100c².
5. For personnel contamination evaluation, levels shall be based on direct measurement and not averaged over any areas.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 77 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

TABLE IV.B.1

TOTAL CONTAMINATION LIMITS (See note 5) (Equivalent to Pantex Radcon Manual, Table 2-3 and 10 CFR 835, Appendix D)		
Nuclide (See Note 1)	Removable (See Note 2)	Total (Fixed + Removable) (See Note 3)
U-natural, U-235, U-238 and associated deca products	1,000 alpha	5,000 alpha
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-129	20	500
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-125, I-126, I-131, I-133	200	1,000
Beta-gamma emitters (nuclides with decay modes other than alpha emission and spontaneous fission) except Sr-90 and other noted above. Includes mixed fission products containing Sr-90.	1,000 beta-gamma	5,000 beta-gamma
Tritium, organic compounds, surfaces contaminated by HT, HTO and metal tritide aerosols (see note 4)	10,000	10,000



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 78 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

5. SAFEGUARDS AND SECURITY

Occurrences in this section require consideration of classified and unclassified controlled nuclear information in addition to careful review for privacy considerations. Classified information is transmitted through approved communications channels and minimized. The lack of detail which may be required in such reports is recognized by DOE management and on a case-by-case basis, communicated to DOE. For the purpose of this group of reportable occurrences, the term "on-site" applies to all facilities, installations, and real property subject to the jurisdiction or administration of the DOE or in the custody and posted with notices of prohibitions and penalties.

(a) Criminal Acts

Initial notification of occurrences in this section follows normal Occurrence Reporting timelines. Full reporting may be delayed until completion of criminal investigations, if the reports jeopardize the investigation.

(1) UNUSUAL

(a) Occurrences in nonreactor nuclear, or explosive facilities regarding:

- (1) Bomb-related incident, including location of a suspicious device or a noncredible bomb threat;
 - (2) A noncredible terrorist threat; or
 - (3) A noncredible sabotage threat or breach or attempted breach of a secure or classified facility.
- (b) Violent assault or battery, murder, or unjustified use of deadly force on DOE property.
 - (c) Theft, diversion or intentional destruction of Government property valued greater than \$1,000,000.
 - (d) Racketeering or other organized criminal activity on-site.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	79 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX B (continued)

Pantex Site Criteria

(2) OFF-NORMAL

- (a) Occurrences in other than nonreactor nuclear, or explosive facilities regarding:
 - (1) Location of a suspicious device or noncredible bomb threat;
 - (2) Noncredible terrorist threat; or
 - (3) Noncredible sabotage threat.
- (b) Theft, diversion or intentional destruction of Government property valued between \$10,000 and \$1,000,000.
- (c) On-site felony conspiracies (i.e., blackmail, fraud, embezzlement, extortion and forgery) not involving classified information.

(b) Unaccounted for classified matter or compromised information

(1) UNUSUAL OCCURRENCE

- (a) The loss, potential compromise, or unauthorized disclosure (determined in accordance with DOE M 471.2-1), in any manner, of information classified as, or which should have properly been classified as, Top Secret (all categories) and Secret (all categories), and/or all documents regardless of classification level and category containing Sensitive Compartmented Information, Special Access Program information, and/or classified information of another government agency or foreign government.

(2) OFF-NORMAL

- (a) The loss, potential compromise, or unauthorized disclosure (determined in accordance with DOE M 471.2-1), in any manner, of information classified as, or which should have properly been classified as, Confidential (all categories), but not including Confidential documents containing Sensitive Compartmented Information, Special Access Program information, and/or classified information of another government agency or foreign government.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 80 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

(c) Substance Abuse

(1) UNUSUAL OCCURRENCE

None specified

(2) OFF-NORMAL

Discovery of the prohibited use, possession or involvement of illegal drugs or alcohol by personnel within a facility.

- (a) Any reportable occurrence under this Plant Standard at least partially attributed to the use of illegal drugs or alcohol.
- (b) A detection of personnel not fit for duty attributable to the use of alcohol or illegal drugs.

(d) Intelligence Activities

(1) UNUSUAL OCCURRENCE

- (a) Extortion or blackmail directed at DOE or Mason & Hanger/Battelle or other subcontractor personnel with intent of obtaining classified information or systems, detailed information concerning plant processes or configurations, or aiding in sabotage or terrorist acts.
- (b) Espionage, intelligence activities, treason, or subversive activities by or directed at DOE or Mason & Hanger/Battelle or other subcontractor personnel.

(2) OFF-NORMAL

- (a) When illegal or unauthorized access is sought to classified or sensitive information, technology, or special nuclear materials.
- (b) DOE or Mason & Hanger/Battelle or other subcontractor personnel believe that they may be the target of an attempted exploitation by an inimical interest, foreign or domestic.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 81 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

(e) Physical Security System Computer

(1) UNUSUAL OCCURRENCE

- (a) Actual or attempted unauthorized access to classified or sensitive unclassified information.
- (b) Discovery of a computer incident (such as virus, hacker, sniffer, abuse, or fraud) involving a physical security system that causes an alteration to a security feature, disruption of service, or loss of confidentiality, integrity or availability of information, and results in an estimated \$1,000,000 or more in damages or the cost of restoring services.

(2) OFF-NORMAL

- (a) Discovery of a computer incident (virus, hacker, sniffer, abuse, fraud, etc.) involving a physical security system that causes an alteration to a security feature, disruption of service, or loss of the confidentiality, integrity or availability of information, and results in an estimated \$10,000 or more in damages or the cost of restoring services.

(f) Unplanned or unscheduled outage of site security system

(1) UNUSUAL OCCURRENCE

- (a) Unplanned or unscheduled outage of any site security system, or major component of a site security system, that is not redundant and/or results in a potential vulnerability which allows unauthorized or undetected access to Protected Areas, Exclusion Areas, and Materials Access Areas.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 82 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX B (continued)

Pantex Site Criteria

NOTE

Loss of a facility security system constitutes a "major component of a site security system," as described in this paragraph.

(2) OFF-NORMAL

- (a) Unplanned or unscheduled outage of any site security system, or major component of a site security system, not encompassed by the unusual occurrence category, that is not redundant and not authorized by a facility shutdown plan or a special security plan approved by DOE, that requires the physical presence of the protective force as a compensatory measure to prevent unauthorized access. This does not include the stationing of protective forces as a backup security system identified in a DOE approved Facility Security Plan.

(g) Demonstrations or protests

(1) UNUSUAL OCCURRENCE

- (a) Disruptive activities impeding vehicular or employees access or egress.
- (b) Attempted or actual trespass.
- (c) Malevolent activities causing property damage or bodily harm.

(2) OFF-NORMAL

- (a) Lawful activities warranting deployment of additional protective measures.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 83 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

(h) Firearms

(1) UNUSUAL OCCURRENCE

- (a) Unauthorized firearms discharge resulting in personnel injury.

(2) OFF-NORMAL

- (a) Unauthorized firearms discharge resulting in no personnel injury.
- (b) Loss or theft of DOE firearms or munitions; as per DOE 5632.7A, 100 rounds or more of ammunition lost or stolen is reported.

(i) Other security concerns

(1) UNUSUAL OCCURRENCE

- (a) Unauthorized use or possession, alteration, or theft of security badge, credentials, shield, passes, or other form of official identification (to include blank badge stock or forms) to gain access to a protected area or limited area.

(2) OFF-NORMAL

- (a) Discovery of prohibited items within a Protected Area which are suspected of being positioned for the purpose of aiding and abetting a malevolent act or are of themselves illegal. Items discovered outside controlled areas that are legal under federal, state, and local laws are not reportable, even if the discovery of such items is otherwise reportable under the paragraph.
- (b) On-site death of cleared DOE or Mason & Hanger/Battelle or other subcontractor personnel by unnatural causes, such as, suicide or drug overdose.
- (c) Loss of security badges in excess of 5 percent in a calendar year.
- (d) On-site malicious mischief, disorderly conduct, or vandalism which disrupts plant activity or causes damage between \$10,000 and \$100,000.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 84 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX B (continued)

Pantex Site Criteria

(j) Material control and accountabilit

(1) UNUSUAL OCCURRENCE

- (a) Loss or apparent loss of the following (including item losses due to shipper-receiver differences): (a) one or more items for which the items total a Category I, II, or III quantity of special nuclear materials, or (b) one or more items of tritium in a weapons or test component, or (c) one or more items which total 50 grams or more of tritium.
Note: Quantities of Special Nuclear Materials for these categories are contained in DOE Order 5633.3B.
- (b) A shipper-receiver difference involving a gain in the number of items for which the items total to a Category I quantity of Special Nuclear Materials.
- (c) Evidence that special nuclear material balance or tritium material balance data has been manipulated or falsified to mask a diversion or theft or to alter loss detection sensitivity.
- (d) Alarms or other indicators, excluding inventory differences or shipper-receiver differences, from loss detection elements for Category I material balance areas that involve a malevolent Act or are not proven to be false within 24 hours.
- (e) Loss or apparent loss whenever a state, local government, or other federal agency is notified.

(2) OFF-NORMAL

- (a) Alarms or other indicators, excluding inventory differences or shipper-receiver differences, from loss detection elements for Category III and IV materials balance areas that cannot be proven to be false within 24 hours.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 85 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX B (continued)

Pantex Site Criteria

- (b) A special nuclear materials or tritium shipper-receiver difference involving a gain in the number of items for which the items total a Category III or IV quantity of material.
- (c) Loss or apparent loss of one or more items for which the items total a Category IV quantity of special nuclear material or any loss of one or more containers of tritium that does not meet the threshold for an unusual occurrence (includes item losses due to shipper-receiver differences).

6. TRANSPORTATION

(a) Transportation of DOE Hazardous Materials

Transportation occurrences are incidents related to the transportation of DOE materials, including hazardous materials, hazardous substances, and hazardous wastes by vehicular, vessel, air, or rail mode. The requirements for reporting noncompliances and violations associated with such transfers are qualified in this Standard. The federal regulations for off-site transportation are found in 10 CFR Part 71, 49 CFR Parts 106-180, 200-250, and 350-399, 46 CFR (vessel), ICAO/IATA, IMDG, 14 CFR (aviation), and several DOE Orders. For on-site (within controlled boundaries of the Pantex site), the transportation regulations for hazardous materials transfers are the same as off-site (DOT's Hazardous Materials Regulations) or as defined in an approved facility Transportation Safety Document.

In the case of receiving materials from a DOE shipper that are not in compliance with appropriate regulations, as qualified by this standard, the discrepancies are reported to the DOE shipper who prepares an Occurrence Report following the DOE requirements and implement suitable corrective actions. If such a shipment is received from a non-DOE shipper and meets the reporting criteria of this standard, the non-DOE shipper is notified by Mason and Hanger of the apparent noncompliance and Mason and Hanger prepares an Occurrence Report stating that the non-DOE shipper has been notified. Note that these reporting criteria are in addition to those required by DOT for contractors subject to the DOT regulations.

(1) UNUSUAL OCCURRENCE

- (a) Any packaging or transportation activity (including loading, unloading, or temporary storage) involving the off-site release of radioactive material, etiologic agents, a reportable quantity of hazardous substance, or marine pollutants.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 86 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

- (b) Any shipment of radioactive material that arrives at the destination with radiation or contamination levels greater than DOT limits, or results in personnel radiation exposure higher than permitted in federal permits, federal regulations, or DOE standards.
 - (c) Any shipment or on-site transfer of radioactive material or hazardous waste that arrives at the destination with an unaccounted for package or an irreconcilable shipping paper, waste manifest, or on-site transfer authorization.
 - (d) A vehicle, or rail incident or accident (without personal injury) that presents significant impact on ability of facility to conduct transportation operations and:
 - (1) Results in release of radioactive or hazardous materials above federal permit, federal regulatory, or DOE Standard limits;
 - (2) Involves performance degradation of safety equipment; or
 - (3) Is the result of failure or degradation of administrative controls required to ensure safety.
 - (e) Violations of the Federal Motor Carrier Safety Regulations or the Hazardous Materials Regulations if violations are determined by DOT inspection and result in a fine (monetary penalty).
 - (f) Lost, strayed, or stolen shipments that are not recovered or accounted for.
- (2) OFF-NORMAL
- (a) Any packaging or transportation activity involving:
 - (1) The off-site release of non-radioactive hazardous material, or an quantity of hazardous waste; or
 - (2) The on-site release of radioactive materials, etiologic agents, hazardous substances, hazardous waste, or marine pollutants.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 87 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

- (b) A vehicle, or rail incident or accident (without personal injury) that affects the ability of a facility to conduct transportation operations and:
 - (1) Results in release of radioactive or hazardous materials below limits established by federal permits, federal regulations, or DOE Standard limits but is reported to State or local agencies; or
 - (2) Is the result of operational procedural violations, including maintenance or administrative procedures.
- (c) Noncompliances (potential violations) of the DOT Hazardous Materials Regulations or the transportation and packaging requirements of the Nuclear Regulatory Commission involving:
 - (1) Errors made by the shipper in materials description, marking, labeling, or placarding;
 - (2) An unqualified person signing shipping papers;
 - (3) The highway routing selection requirements for highway route controlled shipments not being observed;
 - (4) The separation and segregation tables for hazardous materials not strictly adhered to; or
 - (5) The applicable packaging requirements for the assembly, handling, or selection of a package are not in accordance with the applicable regulations.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 88 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

- (d) Noncompliances (potential violations) of the Federal Motor Carrier Safety Regulations involving:
 - (1) A Mason & Hanger/Battelle or subcontractor driver operating a DOE-owned motor vehicle after a positive drug test or failure of an alcohol test;
 - (2) An unqualified driver operating a vehicle (medical, driver's license, or training not in compliance);
 - (3) The carrier (contractor management) not having required insurance;
 - (4) A vehicle that failed inspection that is not removed from service;
 - (5) A specification cargo tank with expired inspection in service with hazardous materials;
 - (6) A driver's log book deliberately misrepresented; or
 - (7) The carrier (contractor management) fails to perform random or periodic drug or substance-abuse testing.
- (e) Any violation of the Hazardous Material Regulations or Federal Motor Carrier Safety Regulations if that violation is determined by DOT inspection and does not result in a penalty.
- (f) Deviations from written procedures of released drawings that may result in a credible threat to nuclear explosive safety.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 89 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX B (continued)

Pantex Site Criteria

7. VALUE BASIS REPORTING

Value basis reporting includes items based on cost or the identification of defective items, materials, or services. A defective item, material, or service (see definition) is identified and reported to allow the initiation of a DOE Headquarter's investigation and to inform Departmental Elements of the defect and initiate actions to eliminate common mode failures due to substandard, counterfeit, misrepresentation, or fraudulent practices of suppliers.

(a) Cost based Occurrences

Any occurrence specifying cost as a basis for reporting, unless otherwise stated, is classified by the following monetary values necessary to repair, replace, or otherwise restore a facility or system or component to acceptable operation. Costs used for reporting are reasonable initial estimates.

NOTE

Costs associated with operational impacts, schedule impacts, and production downtime are excluded from the basis. The cost includes only the labor and material necessary to repair or restore the property to intended function or decontaminate and demolish the property. For occurrences related to war reserve (WR) weapons, WR components, joint test assemblies (JTA), nuclear explosive like assemblies or components (NELA), and related equipment or components, the costs include only direct costs for the components being replaced and then only if the components were not pre-produced as attrition support.

(1) UNUSUAL OCCURRENCE

- (a) Estimated loss or damage to DOE or other property amounting to \$1,000,000 or more, or estimated costs of \$1,000,000 or more required for cleaning (including decontamination), renovating, replacing, or rehabilitating structures, equipment, or property.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 90 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX B (continued)

Pantex Site Criteria

(2) OFF-NORMAL

- (a) Estimated loss or damage to DOE or other property amounting to between \$10,000 and \$1,000,000 (for vehicle or aircraft the lower limit is \$5,000 or, for insurance purposes, considered a total loss) or estimated costs within these limits required for cleaning (including decontamination), renovating, replacing, or rehabilitating structures, equipment, or property.

(b) Defective Item, Material, or Service

(1) UNUSUAL OCCURRENCE

None specified

(2) OFF-NORMAL

- (a) Discovery of any actual or potential defective item, material, including an suspect, counterfeit or substandard product, or service in any application whose failure may result in a substantial safety hazard. Examples include the identification of, suspect, counterfeit, or substandard products found in:
- (1) Cranes, elevators, and forklifts - Items used in the critical load bearing path of such handling or lifting equipment;
 - (2) Vehicles - Items used in engines, brakes or steering mechanisms; and
 - (3) Critical components used in personnel safety equipment; and
 - (4) Facilities -
 - (a) Items used to contain:
 - (1) radioactive fluids
 - (2) high temperature or pressure steam or fluids, or
 - (3) other hazardous material.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 91 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX B (continued)

Pantex Site Criteria

- (b) Safety Class SSC or Safety Significant SSC supporting the safe operation or shutdown of a facility, system, or process that could result in a performance degradation.

- b. Discovery of any actual or potential defective item, material, or service, including any suspect, counterfeit, or substandard product in any application whose failure could not result in a substantial safety hazard. This does not include office supplies, equipment or household products.

8. FACILITY STATUS

This section involves the change of facility status that may affect the performance goals of a facility. The potential inability to meet performance goals may significantly affect other major and minor facilities throughout the complex. Performance goals are operating objectives necessary to accomplish the approved facility, process, or activity mission on a periodic basis. The duration of the goal may be short or long term, but does not exceed the goals of the annual operating plan.

- (a) Facility/Process/Activity Unscheduled Shutdown

NOTE

In this section "shutdown" means securing or significantly curtailing operations in a facility or process. It does not mean the facility is in the SHUTDOWN Mode.

- (1) UNUSUAL OCCURRENCE

None specified

- (2) OFF-NORMAL

- (a) Any unscheduled shutdown of a facility, process, or operation that resulted or may result in the failure to meet approved performance goals.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	92 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX B (continued)

Pantex Site Criteria

- (b) Existing Facility/Process/Activity Shutdown Extension
 - (1) UNUSUAL OCCURRENCE
None specified
 - (2) OFF-NORMAL
 - (a) Any increase in an approved shutdown schedule of 1 month or greater or that resulted or may result in the failure to meet approved performance goals for an existing facility, process, or activity.
- (c) New Facility/Process/Activity Start-up Dela
 - (1) UNUSUAL OCCURRENCE
None specified
 - (2) OFF-NORMAL
None specified
- 9. NUCLEAR EXPLOSIVE SAFET
 - (a) Any nuclear explosive occurrence at the Pantex Plant facilities or during on-site or off-site nuclear explosive transportation.
 - (1) EMERGENC
 - (a) Nuclear or high-explosive detonation.
 - (b) Dispersal of plutonium from a nuclear explosive.
 - (c) Seizure, theft, or loss of a nuclear explosive.
 - (d) Inadvertent or deliberate unauthorized arming of a nuclear explosive.
 - (e) Any safeguards or security occurrence involving nuclear explosives that is an actual or potential threat to DOE operations, facilities, or personnel, and results or may result in significant effects on the public health and safety and/or on the national security.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 93 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX B (continued)

Pantex Site Criteria

(2) UNUSUAL OCCURRENCE

- (a) The unauthorized introduction of electrical energy into a nuclear explosive.
- (b) The unauthorized compromise of a nuclear explosive safety feature when installed on a nuclear explosive.
- (c) Damage to a nuclear explosive that results in a credible threat to nuclear explosive safety.
- (d) Mismarking or inadvertent substitution of a nuclear explosive for a nuclear explosive-like assembly (NELA) or vice versa.
- (e) A violation of a nuclear explosive safety rule (NESR).

(3) OFF-NORMAL

- (a) A "near miss," i.e., a situation that could (but did not) result in a credible threat to nuclear explosive safety.
- (b) A violation of the two-person concept of operations.
- (c) Revocation of the Personnel Assurance Program (PAP) certification of an individual (for cause).
- (d) Damage to a training unit during training operations indicative of a hazard to a nuclear explosive.
- (e) The use of uncertified personnel or unauthorized equipment/tooling during a nuclear explosive operation.
- (f) Deviations from written procedures or released drawings that may result in a credible threat to nuclear explosive safety.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 94 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX B (continued)

Pantex Site Criteria

10. CROSS-CATEGORY ITEMS

(a) Collectively Significant Related Occurrences

(1) UNUSUAL OCCURRENCE

- (a) A series of related occurrences which individually do not warrant reporting under preceding criteria but which collectively are considered significant enough to warrant reporting as determined by the Facility Manager.

(2) OFF-NORMAL

- (a) A series of related occurrences which individually do not warrant reporting under preceding criteria but which collectively are considered significant enough to warrant reporting as determined by the Facility Manager.

(b) Near Miss Occurrences

(1) UNUSUAL OCCURRENCE

- (a) A near miss to one of the reporting classifications where the conditions necessary to cause an unusual occurrence existed, such as, all barriers to event initiation were compromised, even though the event was avoided.

(2) OFF-NORMAL

- (a) A near miss to one of the reporting classifications where the conditions necessary to cause an Off-Normal Occurrence existed (i.e., all barriers to event initiation were compromised).



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	95 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX B (continued)

Pantex Site Criteria

- (b) A near miss to one of the reporting classifications where the conditions necessary to cause a reportable occurrence were prevented from existing by one remaining barrier after other barriers were compromised (i.e., one additional independent failure or degradation was necessary for event initiation to be possible).
- (c) Potential Concerns/Issues
 - (1) UNUSUAL OCCURRENCE
 - (a) An occurrence which may result in a significant concern, particularly in the off-site transportation and radiological areas, by the press or general population or which may damage the credibility of the DOE.
 - (b) Identification of potential concerns or issues that are deemed worthy of reporting by the Facility Manager.
 - (2) OFF-NORMAL
 - (a) Any occurrence resulting in the initiation of a Type A or B investigation as categorized by DOE O 225.1, "Accident Investigations."
 - (b) Identification of potential concerns or issues that are deemed worthy of reporting by the Facility Manager.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 96 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX C

Checklist for Occurrence Report Review

1. Are all of the fields addressed? (#1-19 and 25 for Notification Reports, all fields for other reports.)
2. Does the Facility Function (in the report header area) identify the function of the facility, not the function being performed at the time of the occurrence, if different?
 - (a) The facility function for each facility is usually a constant, the same for all occurrences.
 - (b) If Balance of Plant (BOP) is used, is it appropriate?
3. Was the report reviewed by an Authorized Classifier (AC) to verify that no classified or UCN information is in the report? Is the AC's name and date provided on the report (in the report header area)?
4. For Roll-Up Reports, does the Number of Occurrences (#4) accurately reflect the number of occurrences detailed in the Description of Occurrence (#16)?
5. Is the Division or Project (#5) in the proper format, e.g., Contractor-Division-Department? If site-specific acronyms are used, are they defined in the Description of Occurrence (#16)?
6. Is the DOE Secretarial Office (#6) correct?
7. Are the Systems, Equipment, or Buildings (#7) identified? In the case of component failures or defective parts or materials, are the equipment specifics provided, such as manufacturer, model number, and size?
8. Has the report been reviewed by a Reviewing Official (RO) for UCN information (#8)? If UCN information is included, is the report marked?
9. Is the Plant Area (#9) actually where the event took place?
10. Are the Discovery Date and Time (#10), Categorization Date and Time (#11), and Notification Dates and Times (#12 and #13) entered correctly? If there are additional notifications to be provided that do not fit within Other Notification (#13), are the notifications listed in Immediate Actions Taken and Results (#19)?
11. Is the Subject or Title (#14) descriptive, accurate, understandable by laymen, and useful for cross-referencing?



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	97 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX C (continued)

Checklist for Occurrence Report Review

12. Does the Subject or Title (#14) end in (USQ) for occurrences involving Unreviewed Safet Questions or (Roll-Up) for Roll-Up Reports?
13. If the Subject or Title (#14) contains UCNI, can it be rewritten to eliminate the UCNI?
 - (a) Are the subject and title of roll-ups included?
14. Is the Nature of Occurrence (#15) correct and does it accurately identify the event?
 - (a) Are all of the criteria applicable to this occurrence identified?
15. Does the Description of Occurrence (#16) contain all of the following?
 - (a) A clear, factual, logical flow of information
 - (b) For contamination incidents, is all the information required by Appendix D entered?
 - (c) Explanation of abbreviations, acronyms, and site-specific terms
 - (d) A level of detail commensurate with the relative importance of the incident
 - (e) The method of discovery and, if appropriate, the sequence of events to show the logical progression of the occurrence
 - (f) Any personnel errors involved or procedural problems encountered
 - (g) Response of safety systems and signals and any loss of safety equipment
 - (h) Operation actions that affected the course of the event
 - (i) Any component failure, failure modes and duration of any failures
 - (j) In equipment failure cases, a description of the equipment, properly identified with the manufacturer, model number, size, etc.
 - (k) If appropriate, description of photos, sketches, or drawings that are available and how to obtain the



**MASON & HANGER CORPORATION
PANTEX PLANT**

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	98 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX C (continued)

Checklist for Occurrence Report Review

- (l) If appropriate, a brief description of the function or purpose of the facility
- (m) Verify roll-ups include additional entries.
- 16. Are the Operating Conditions of the Facility at the Time of the Occurrence (#17) descriptive of the operational status of the facility or equipment at the time of the occurrence?
 - (a) Are pertinent pressures, temperatures, etc., described?
- 17. Does the Activity Category (#18) properly reflect what was occurring at the time of the occurrence, not the status of the facility?
- 18. Do Immediate Actions Taken and Results (#19) place operations or personnel in a safe and defensible state?
 - (a) Are the immediate actions appropriate for the occurrence?
 - (b) If additional notifications are made (more than five), is the list correct?
 - (c) Verify roll-ups include additional entries.
- 19. Does the Direct Cause (#20) refer to the obvious, immediate source of the occurrence?
 - (a) For roll-ups, entries are included as appropriate.
- 20. Does the Contributing Cause(s) (#21) refer to other things that led to the occurrence?
 - (a) For roll-ups, entries are included as appropriate.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 99 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX C (continued)

Checklist for Occurrence Report Review

21. Does the Root Cause (#22) refer to the basic underlying conditions that led to the occurrence?
 - (a) When this activity or condition is appropriately addressed (resolved), is there a reduced chance of recurrence?
 - (b) Is there a logical relationship between the cause codes and the Description of Cause?
 - (c) Is the method used for the Root Cause Analysis identified?
22. Does the Description of Cause (#23) discuss the root, direct, and contributing causes?
 - (a) Verify same root cause code applies to all Roll-Up Reports.
 - (b) Is there a logical relationship to the Description of Occurrence (#16)?
 - (c) Are the corrective actions adequately detailed, and from the description of the Corrective Action can the intent and desired outcome be understood?
 - (d) If the Nature of Occurrence (#15) is Group 7B, is the text "suspect or counterfeit products" included here?
23. Does the Facility Manager's Evaluation (#24) explain how the occurrence happened in spite of controls, and why corrective action reduces the chance of recurrence?
 - (a) If this is an Update Report requesting an extension for the due date of the Final Report, was a justification provided?
24. If Further Evaluation Required (#25) was checked as "YES," are the activities and schedules realistic?
 - (a) If this is an Update Report requesting an extension for the due date of the Final Report, was the future evaluation checked "YES" and the new due date for the Final Report entered?



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 100 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX C (continued)

Checklist for Occurrence Report Review

25. Do the Corrective Actions (#26) address the cause(s) identified in the cause code fields (#20-22)?
 - (a) Are actions accomplishable? Are actions scheduled in a reasonable time frame? Are actions closeable?
 - (b) Have actions been scheduled? Is there a name or department listed for responsibility? Do responsible departments accept the corrective action assignment(s)?
26. Does the Impact on Environment, Safety, and Health (#27) address the issue?
 - (a) What was reviewed to determine if this occurrence had any impact?
 - (b) Verify roll-ups include additional entries.
 - (c) Ensure the proper ES&H department has reviewed the document.
27. Does Programmatic Impact (#28) identify how the occurrence affects schedule, cost, etc.?
28. Does Impact Upon Codes and Standards (#29) address actual codes and standards? What was reviewed?
29. Does Lessons Learned (#30) include information pertaining to this occurrence that has the potential to benefit others?
 - (a) Does a Lessons Learned (#30) need to be developed and disseminated throughout the DOE complex?
30. Was a review made to determine if there were other similar occurrences, relationships, or trends discussed in the Facility Managers Evaluation (#31)? Have the similar occurrences been entered properly?
31. Has this occurrence been reviewed to determine if it is part of a current trend?
32. After reading the complete report, do you really understand what happened, including the significance of what happened, the cause, and the corrective actions?



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	101 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX C (continued)

Checklist for Occurrence Report Review

33. Does the author of the report appear to need additional training in Occurrence Report writing, root cause analysis, etc.?
34. If any time limits were exceeded, such as discovery, categorization, report submission, were the reasons addressed in the report?



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 102 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D

ORPS Database Operating Instructions

1. Instructions for Preparing Occurrence Reports

1.1 General

NOTE

The following instructions apply to the reporting of occurrences using the Occurrence Reporting and Processing System (ORPS) electronic data base or hard copy for reports containing classified information.

1.2 All Users

1.2.1 Classified Information in Reports

- (a) Submit reports containing classified information or UCNI in hard copy.
 - (1) Number the report items to correspond with the numbered data entry fields on the ORPS report form.
 - (2) Include type of report (notification, update, or final) submitted in data field description field.

1.2.2 Required Information and Data Fields

NOTES

- 1. Spell check feature is provided for data fields completed using the word processing option.
- 2. ORPS Software performs checks for required fields for data.

- (a) Enter information in data fields 1 through 19 and 25 for the Notification Report.



MASON & HANGER CORPORATION PANTEK PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 103 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- (b) Enter data in other fields if known.
- (c) Retain information contained in the Notification Report in the Update and Final Reports.
- (d) Update Reports as additional information is available.

1.2.3

Facility/Personnel Report Information

- (a) Complete this field for Notification Reports.
- (b) Verify information is correct on "Update" and "Update/Final" Reports.

NOTE

The ORPS Software offers help in completing this data field by pressing F2.

- (c) Enter the acronym for the facility name in the Name of Facility/Facility Code data field.

1.2.4

Facility Function

- (a) Complete this field for Notification reports.
- (b) Verify this information is included and is correct for the Update and Update/Final Reports.
- (c) Determine the type of facility or the primary activity or function performed at the time of the occurrence. The following list pertains to the Pantex Plant.
 - (1) Plutonium Processing and Handling
 - (2) Special Nuclear Materials Storage



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 104 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- (3) Explosive
- (4) Uranium Conversion/Processing and Handling
- (5) Nuclear Waste Operations
- (6) Tritium Operations
- (7) Environmental Restoration Operations
- (8) Balance-of-Plant

1.2.5 Name of Laboratory, Site or Organization/Site Name

NOTE

Generated and automatically entered by ORPS software and applies to Notification, Update and Update/Final Reports.

1.2.6 Facility Manager or Designee

NOTES

- 1. ORPS software blanks the field after transmittal or download.
- 2. This field applies to Notification, Update and Final Reports.

- (a) Reenter information for subsequent report after initial transmittal or download.
- (b) Enter the name, telephone number and title of the cognizant Facility/Responsible Manager for the occurrence.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 105 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

1.2.7 Originator/Transmitter

NOTE

Generated and automatically entered by ORPS software and applies to Notification, Update and Update/Final Report.

1.2.8 Authorized Classifier (AC)

NOTE

This field applies to Notification, Update and Update/Final Report

- (a) Reenter data field information after transmittal or download of a report.
- (b) Ensure Authorized Derivative Classifier (ADC) reviews all reports before transmission.
- (c) Enter the name of the ADC who reviewed the report and the date of review.
- (d) Ensure that all weapon's related Occurrence Reports are reviewed by the Classification Office.



MASON & HANGER CORPORATION

PANTEX PLANT

PLANT STANDARD

**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 106 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2. Report Items

2.1 Occurrence Report Number (Data Field #1)

NOTES

1. This number is generated by ORPS software.
2. ORPS automatically assigns temporary report number before transmittal. A permanent number is assigned by ORPS software when report is transmitted.

2.1.1 Use this field when using the Notification, Update and Update/Final Report.

2.2 Report Type and Date (Data Field #2)

NOTES

1. ORPS software completes the Notification or Update when initial submitted. Updates are automatically completed.
2. ORPS software automatically inserts the date and time (MTZ) when the Notification Report is transmitted and enters the dates for the Notification Report, Initial Update, Latest Update, and Final Report.

2.2.1 Check the Update/Final Report if the report is to be submitted as a Final.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 107 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.2.2 Update Reports

- (a) Ensure an "X" has been placed in the Update box.
- (b) If the report is being submitted as an updated report, provide the reason for the delay and the estimated date for submittal of the Final Report in Block 24.

2.2.3 Final Reports

- (a) Enter an "X" in the Update/Final box.

2.3 Occurrence Category (Data Field #3)

NOTE

This field is required for Notification Reports.

2.3.1 Verify and update as appropriate for Update and Update/Final Reports.

2.3.2 Enter only one occurrence category code from the following choices:

- (a) Emergenc
- (b) Unusual
- (c) Off-Normal
- (d) Canceled

2.3.3 Indicate the occurrence category.

2.3.4 Elevate or lower the category based on additional information.

2.3.5 Enter the new category in this block.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 108 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.3.6 Document the reason for the change in Block 24.

2.3.7 Check "Canceled" in this block, when canceling a report.

2.3.8 Document the reason for cancellation in Block 24.

2.4 Number of Occurrences (Data Field #4)

NOTES

1. This field applies to Notification, Update and Update/Final Reports.
2. The number is one unless the occurrences meet the criteria for Roll-Up Reports of Off-Normal occurrences.

2.4.1 Enter the number of occurrences included in this report.

2.4.2 Update this field each time additional occurrences are added, if the occurrences meet the roll-up criteria.

2.5 Division or Project (Data Field #5)

2.5.1 Complete this field for Notification reports.

2.5.2 Verify that information is current on Update/Final Reports.

2.5.3 Identify the Division responsible for the facility where the occurrence occurred.

2.5.4 Enter the Division name as listed below. Spaces, plurals, abbreviations, department or group names are not allowed.

- (a) Applied Technology Division
- (b) Corps Of Engineers



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 109 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- (c) Engineering & Design Division
- (d) Facilities Division
- (e) Manufacturing Division
- (f) Operations Support Division
- (g) Safeguards, Security, and Fire Protection Division (SS&FP)
- (h) Environment, Safety and Health Division (ES&H)

2.6 DOE Secretarial Office (Data Field #6)

2.6.1 Complete this field for Notification Reports.

2.6.2 Verify and update the Update and Update/Final Reports as needed.

2.6.3 Identify the DOE Secretarial Office with operational responsibility for this facility.

2.6.4 Enter only one DOE Secretarial Office from the choices offered.

(a) DP - Defense Programs

(b) EM - Environmental Management

(1) The following facilities are responsible to the Environmental
Management Office:

- (i) 11-9 North
- (ii) 11-9 South
- (iii) 11-7 North Pad
- (iv) 16-16



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 110 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

(v) 12-42 Waste Segregation Area

(vi) 12-42 Waste Compaction Area

2.7 System, Building, or Equipment (Data Field #7)

NOTE

This field is limited to 80 characters.

- 2.7.1 Complete this field for Notification reports.
- 2.7.2 Verify and update this field if needed for Update and Update/Final Reports.
- 2.7.3 Identify systems, equipment, or structural items significant to the occurrence.
- 2.7.4 Enter the Equipment or System, Manufacturer and Model number of equipment, Property Number, Building, Bay/Cell/Room, as applicable.

Example

Alpha Monitor, Radeco Model #442, PN#799-1234, Building 12-44, Cell 6.

- 2.7.5 List the manufacturer, model number, and size for component failure or defective parts. List significant items here.
- 2.7.6 Provide additional information in Block 16.
- 2.8 Unclassified Controlled Nuclear Information (UCNI) (Data Field #8)
 - 2.8.1 Complete this field for Notification reports.
 - 2.8.2 Verify and update the Update and Update/Final Report as required.
 - 2.8.3 Determine if UCNI is contained in the report and mark accordingly.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 111 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- 2.8.4 Stamp hard copy documents according to classification.
- 2.8.5 Request preliminary review determination from the Classification Office to determine if UCNi information is present, when necessary.
- 2.8.6 Enter only a nonsensitive version of the report to the ORPS database.
- 2.9 Plant Area (Data Field #9)
 - 2.9.1 Complete this field for Notifications reports.
 - 2.9.2 Verify this information and update the Update and Update/Final Reports as required.
 - 2.9.3 Identify the plant zone location of the event.
- 2.10 Date and Time Discovered (Data Field #10)
 - 2.10.1 Complete this field for Notifications reports.
 - 2.10.2 Verify and update the Update and Update/Final Reports, as required.

NOTE

1. The discovery time of a suspected internal uptake is the time verification is received from Radiation Safety.
2. The discovery time for an environmental release or non-compliance with NPDES permit is when the sample was determined to have exceeded a threshold value, not when the sample was taken.

- 2.10.3 Enter the date (MM/DD/YY) and time (24-hour clock: HHMM) that occurrence was determined reportable, such as time the occurrence was first noticed, or when a test result or damage estimate triggers reportability.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 112 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.11 Date and Time Categorized (Data Field #11)

NOTE

Changes to this field require approval of the ORPS Program Administrator for Update and Update/Final Reports.

- 2.11.1 Complete this field for Notification reports.
- 2.11.2 Enter the date (MM/DD/YY) and time (24-hour clock: HHMM) the Facility Manager categorized the occurrence.
- 2.11.3 If categorization determination is longer than two hours after the discovery date and time in Block 10, include the reason for the delay in Block 16, "Description of Occurrence."
- 2.11.4 Document the latest categorization date and time in Block 16, for occurrences that are upgraded or downgraded in category.

2.12 Date and Time of DOE Notification (Data Field #12)

NOTE

This field is used to record the date and time of notification of the DOE HQ Coordinator in the DOE HQ EOC.

- 2.12.1 Complete this field for Notification reports classified as Emergency or Unusual.
- 2.12.2 Verify and update the Update and Update/Final Reports if additional notifications are made.
- 2.12.3 Update if the occurrence is upgraded.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	113 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Quality Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- 2.12.4 Enter additional notifications, when subsequent notifications are required due to changes to the categorization level.
- 2.12.5 Enter the date (MM/DD/YY) and time (24-hour clock: HHMM), name of the DOE HQ Coordinator contact, and the organization (DOE/HQ).
- 2.13 Date and Time of Other Notification (Data Field #13)
 - 2.13.1 Complete this field for Notification reports when additional notifications are made.
 - 2.13.2 Verify and update the Update and Update/Final Reports if additional notifications are made.
 - 2.13.3 For Unusual and Emergency occurrences, record in this field, notifications to the DOE Albuquerque EOC, the DOE Amarillo Area Office Duty Officer, and other State and local officials and agencies.
 - 2.13.4 For Off-Normal occurrences, record in this field, notification of the DOE Amarillo Area Office Duty Officer.
 - 2.13.5 Enter the date (MM/DD/YY), time (24-hour clock: HHMM), name of the contact, and the organization of the contact (DOE/AL or DOE/AAO).
 - 2.13.6 Enter the additional information in Block 19, Immediate Actions Taken and Results, if there are more than five notifications or previous notifications due to an upgrade or downgrade in the category of the occurrence.



**MASON & HANGER CORPORATION
PANTEX PLANT**

**PLANT STANDARD
EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 114 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.14 Subject or Title of Occurrence (Data Field #14)

NOTE

This field is limited to 140 characters maximum. No word wrap feature is available.

- 2.14.1 Complete this field for Notification reports.
- 2.14.2 Verify and update as appropriate for Update and Update/Final Reports.
- 2.14.3 Enter USQ at the end of the subject or title, if the occurrence involves an Unreviewed Safety Question.
- 2.14.4 Enter a brief title or description of the nature, cause, and result of the occurrence. Include the building number and bay/cell/room number where the event occurred, if applicable.
- 2.14.5 If the report is a Roll-Up Report enter "Roll-Up" and the number of occurrences in the report such as Roll-Up (3). The first occurrence in the report is number 1.

2.15 Nature of Occurrence (Data Field #15)

NOTE

Occurrences reported in data field 15 under Group 1 (Facility Condition) and Group 4 (Personnel Radiation Protection) are of special significance to nuclear safety. Final Reports for occurrences within these groups are to contain a thorough narrative discussion.

- 2.15.1 Complete this field for Notification reports.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE	Page No.	115 of 139
PROCESS AND OCCURRENCE REPORTING	Issue	30
	Date	March 26, 1998
	DOCUMENT	
	SPONSOR:	Internal Audit, Assurance & Quality Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- 2.15.2 Verify and update as appropriate for Update and Update/Final Reports.
- 2.15.3 Use the Pantex Site-Specific Criteria to determine the appropriate nature of the occurrence.
- 2.15.4 Enter up to three Nature of Occurrence codes or press F2 to display codes and select the appropriate natures of occurrence, with the highest category level listed first. Possible codes are:
- (a) Group 01. Facility Condition
 - (1) Nuclear Criticality Safety - 01A
 - (2) Fires/Explosions - 01B
 - (3) Safety Status Degradation - 01C
 - (4) Loss of Control of Radioactive Material/Spread Contamination - 01D
 - (5) Safety Structure/System/Component Degradation - 01E
 - (6) Violation/Inadequate Procedures - 01F
 - (7) Oversight Activities - 01G
 - (8) Operations - 01H
 - (b) Group 02. Environmental
 - (1) Radionuclide Releases - 02A
 - (2) Release of Hazardous Substances/Regulated Pollutants/Oil - 02B
 - (3) Hazardous Material Contamination - 02C
 - (4) Ecological Resources - 02D
 - (5) Agreement/Compliance Activities - 02E



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 116 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- (c) Group 03. Personnel Safety
 - (1) Occupational Illness/Injuries - 03A
 - (2) Vehicular Incidents - 03B
 - (3) Safety Concerns - 03C
- (d) Group 04. Personnel Radiation Protection
 - (1) Radiation Exposure - 04A
 - (2) Personnel Contamination - 04B
- (e) Group 05. Safeguards and Security
 - (1) Criminal Acts - 05A
 - (2) Unaccounted for Classified Matter/Compromised Information - 05B
 - (3) Substance Abuse - 05C
 - (4) Intelligence Activities - 05D
 - (5) Security Computer Equipment/Systems - 05E
 - (6) Unplanned/Unscheduled Outage of Site Security System - 05F
 - (7) Demonstrations/Protests - 05G
 - (8) Firearms - 05H
 - (9) Other Security Concerns - 05I
 - (10) Material Control and Accountability - 05J



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 117 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- (f) Group 06. Transportation
- (g) Group 07. Value Basis Reporting
 - (1) Cost Based - 07A
 - (2) Defective Item, Material, or Service - 07B
- (h) Group 08. Facility Status
 - (1) Facility/Process/Activity Unscheduled Shutdown - 08A
 - (2) Facility/Process/Activity Shutdown Extension - 08B
- (i) Group 09. Nuclear Explosive Safet
- (j) Group 10. Cross-Category Items
 - (1) Collectively Significant Related Occurrences - 10A
 - (2) Near Miss Occurrences - 10B
 - (3) Potential Concerns/Issues - 10C

2.16 Description of Occurrence (Data Field #16)

NOTE

Spell check and word wrap are available for this field.

- 2.16.1 Complete this field for Notification reports.
- 2.16.2 Verify and update the Update and Update/Final Reports.
- 2.16.3 Enter a clear, concise, objective description of occurrence and observation.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 118 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

NOTE

The first ten lines of the description appear on the summary reports.

- 2.16.4 Include significant information in the first ten lines.
- 2.16.5 Provide synopsis of the event in the first paragraph.
- 2.16.6 Provide details of the occurrence in the next paragraph.
- 2.16.7 Provide a sequence of events.
- 2.16.8 Provide the following types of information as appropriate:
 - (a) Method of discovery.
 - (b) Component failure.
 - (c) Personnel errors involved, including the type and result of the error.
 - (d) Procedure problems encountered.
 - (e) Automatic or manual safety systems response and the signals that initiated and terminated the operation(s).
 - (f) The duration of any failures.
 - (g) Operator actions that affected the course of events.
 - (h) The loss of any safety equipment.
 - (i) Impacts to environment, safety, or health.
 - (j) Estimate of damage costs.



MASON & HANGER CORPORATION PANTEK PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 119 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- (k) Personnel injuries.
- (l) If the occurrence was a surveillance failure, the step number in a surveillance that failed.

NOTE

For contamination events, consult Radiation Safety and include the following information in the description:

- (m) Personnel Contamination Occurrences
 - (1) Number and types of individuals
 - Contamination event involving a single individual.
 - Contamination event involving multiple individuals.
 - Type of individual, such as radiation worker, general employee, member of the public, or minor.
 - (2) Type of contamination event
 - Worker's clothing contaminated.
 - Skin contamination.
 - Potential internal contamination from inhalation/ingestion.
 - Facial/nasal contamination/possible internal contamination.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 120 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- Internal contamination confirmed by bioassay.
 - Radionuclide(s) involved if known (e.g. PU) and general category such as, beta and/or gamma, alpha, if unknown.
- (3) Extent of contamination
- Appropriate description of clothing.
 - Confined to limited area of body.
 - If not confined, state area of body involved.
 - Maximum detected activity: ___ dpm/100 c².
- (4) Location (area) where contamination occurred and worker activit
- Occurred inside the contamination area, high activit contamination area, airborne radioactivity area.
 - Occurred outside of radiological area, but on-site or within the facility.
 - State worker activity at time of occurrence.
- (5) Significance of occurrence relative to operations
- Isolated event operations confined to room, facility, building or area.
 - Event resulting from equipment or protective clothing malfunction.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 121 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- Event resulting from procedural violation or deficiency.
- Recurrent event.

(n) Area or Facility Contamination Occurrences

(1) Location of occurrence

- Roo
- Building
- Facility
- Area
- Site.

(2) Type of contamination occurrence

- Spill or loss of containment.
- Airborne release.
- Fixed/loose surface contamination.
- Radio nuclide(s) involved if known and general categor such as beta, gamma, alpha, if unknown.

(3) Extent of contamination

- Total area involved.
- Confined within room, building, facility, area, or site
- Release beyond or containment within above locations, as applicable.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 122 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

(4) Impact on operations

- Normal operation not impacted.
- Designated equipment or activity removed from service.
- Personnel access restricted until cleanup is completed.

- 2.16.9 Describe photos, sketches, or drawings that are available and how to obtain.
- 2.16.10 Preface report noting that only preliminary information is available at time of report, for Notification Reports.
- 2.16.11 Keep the notification brief and include all pertinent information.
- 2.16.12 Provide only facts. Do not speculate, begin causal analysis, or identify corrective actions, for Notification Reports.
- 2.16.13 Avoid the use of acronyms, jargon, and Pantex-specific terms unless clearly defined.
- 2.16.14 Ensure the narrative explains the nature of the occurrence.
- 2.16.15 For Roll-Up Reports, clearly identify each new occurrence with a heading, and a discussion of each additional occurrence.
- 2.16.16 Provide valuable, pertinent information without extraneous material.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 123 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.17 Operating Conditions of Facility at Time of Occurrence (Data Field #17)

NOTE

This field is limited to 140 characters on two lines.

- 2.17.1 Complete this field for Notification reports.
- 2.17.2 Verify and update the Update and Update/Final Reports.
- 2.17.3 Describe the operational status of the facility or equipment including pertinent temperatures, pressures, or other parameters for evaluation of the occurrence. If operational status does not apply to a specific report, enter, "Does not apply."
- 2.18 Activity Category (Data Field #18)
- 2.18.1 Complete this field for Notification reports.
- 2.18.2 Verify and update the Update and Update/Final Reports.
- 2.18.3 Enter an activity category code number from the following list:
- (a) Construction - 01
 - (b) Maintenance - 02
 - (c) Normal Operations - 03
 - (d) Startup - 04
 - (e) Shutdown - 05
 - (f) Facility/System/Equipment Testing - 06



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 124 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- (g) Training - 07
- (h) Transportation - 08
- (i) Emergency Response - 09
- (j) Inspection/Monitoring - 10
- (k) Facility Decontamination/Decommissioning - 11

2.19 Immediate Actions Taken and Results (Data Field #19)

NOTE

Spell check and word wrap are available for this field.

- 2.19.1 Complete this field for Notification reports.
- 2.19.2 Verify and update for Update and Update/Final Reports.
- 2.19.3 Describe the immediate or remedial actions taken to correct or alleviate the condition and to return the facility, system, or equipment to service, and the results of those actions. Include interim compensatory measures to keep the facility in a safe standby condition or to permit continued operation of the facility without compromising safety.
- 2.19.4 List, in sequential order, the immediate actions to aid in understanding the report.
- 2.19.5 Include stop work orders when describing actions taken.
- 2.19.6 State if a formal investigation (Type A, Type B, or other) has been convened.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING	Page No.	125 of 139
	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Qualit Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- 2.19.7 If more than five notifications were made in Block 12, include any additional notifications, including the date/time of the notifications and the names and organizations contacted.
- 2.19.8 For contamination events, consult Radiation Safety and include the information listed below as immediate actions taken:
- (a) Personnel Contamination Occurrences
 - (1) Status of decontamination
 - Personal clothing retained.
 - Individual(s) successfully decontaminated below detectable levels.
 - Individual(s) decontaminated below reporting criteria with residual contamination persisting.
 - Medical assistance required.
 - (b) Area or Facility Contamination Occurrences
 - (1) Status of control and decontamination
 - Affected area controlled or isolated to prevent spread of contamination.
 - Decontamination initiated or completed.
- 2.19.9 Identify each new occurrence with a heading and include a discussion of each new occurrence for Roll-Up Reports.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 126 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.20 Direct Cause (Data Field #20)

NOTE

This field is not applicable to Notification and Update Reports.

- 2.20.1 Complete this field for Update/Final Reports.
- 2.20.2 Include additional entries as applicable in Roll-Up Reports.
- 2.20.3 Select all applicable Causal Factors and select one Direct Cause and subcategory as listed below.
- 2.20.4 Select the one subcategory that best depicts the cause of the primary effect, which best describes the action or condition that directly produced the unwanted event or caused the occurrence.

2.21 Contributing Cause (Data Field #21)

NOTES

1. This field is not applicable to Notification and Update Reports.
2. This is not a required field for Update/Final Reports.

- 2.21.1 Include additional entries as applicable in Roll-Up Reports.
- 2.21.2 Select up to three contributing causes and enter in this field.
- 2.21.3 Select up to three contributing causes and one subcategory for each contributing cause that best depicts the cause(s) that contributed to the occurrence. An entr in this Block is not required if no contributing cause was involved.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 127 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.22 Root Cause (Data Field #22)

NOTES

1. This field is not applicable to Notification and Update Reports.
2. This is a required field for Update/Final Reports.

2.22.1 Select one Root Cause and one subcategory.

NOTE

The root cause does not apply to this occurrence only, but has generic implications to a broad group of possible occurrences.

2.22.2 Select the one subcategory that best depicts the root cause, that if corrected, prevents recurrence of occurrences and the corrective action is within Pantex's control.

2.22.3 Use one of the following Causal Factors:

- (a) Equipment/material Problem
 - (1) Defective or Failed Part - 1A
 - (2) Defective or Failed Material - 1B
 - (3) Defective Weld, Braze, or Soldered Joint - 1C
 - (4) Error by Manufacturer in Shipping or Marking - 1D
 - (5) Electrical or Instrument Noise - 1E



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 128 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- (6) Contaminant - 1F
- (7) End of Life Failure - 1G
- (b) Procedure Problem
 - (1) Defective or Inadequate Procedure - 2A
 - (2) Lack of Procedure - 2B
- (c) Personnel Error
 - (1) Inattention to Detail - 3A
 - (2) Procedure Not Used or Used Incorrectly - 3B
 - (3) Communication Problem - 3C
 - (4) Other Human Error - 3D
- (d) Design Problem
 - (1) Inadequate Work Environment - 4A
 - (2) Inadequate or Defective Design - 4B
 - (3) Error in Equipment or Material Selection - 4C
 - (4) Drawing, Specification, or Data Errors - 4D
- (e) Training Deficiency
 - (1) No Training Provided - 5A
 - (2) Insufficient Practice or Hands-On Experience - 5B
 - (3) Inadequate Content - 5C



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD	Index No.	STD-3140
EVENT INVESTIGATION, CRITIQUE	Page No.	129 of 139
PROCESS AND OCCURRENCE REPORTING	Issue	30
	Date	March 26, 1998
	DOCUMENT SPONSOR:	Internal Audit, Assurance & Quality Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- (4) Insufficient Refresher Training - 5D
- (5) Inadequate Presentation or Materials - 5E
- (f) Management Problem
 - (1) Inadequate Administrative Control - 6A
 - (2) Work Organization/Planning Deficiency - 6B
 - (3) Inadequate Supervision - 6C
 - (4) Improper Resource Allocation - 6D
 - (5) Policy Not Adequately Defined, Disseminated, or Enforced - 6E
 - (6) Other Management Problem - 6F
- (g) External Phenomena
 - (1) Weather or Ambient Condition - 7A
 - (2) Power Failure or Transient - 7B
 - (3) External Fire or Explosion - 7C
 - (4) Theft, Tampering, Sabotage, or Vandalism - 7D
- (h) Radiological/hazardous Material Problem
 - (1) Legacy Contamination - 8A
 - (2) Source Unknown - 8B



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 130 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.23 Description of Cause (Data Field #23)

NOTES

1. Spell check and word wrap are available for this data field.
2. This field is not applicable to Notification and Update Reports.

- 2.23.1 Complete this field for Update/Final Reports.
- 2.23.2 Discuss the cause of the occurrence to include direct, contributing, and root causes, and state the corrective actions identified which correct that cause.
- 2.23.3 Use a separate paragraph for each causal factor.
- 2.23.4 Combine the discussion of multiple causes when the direct and root cause are the same, and the same corrective actions apply. Include a detailed description of the corrective actions required to demonstrate that the identified actions adequately address the cause(s) of the problem.
- 2.23.5 State the root cause method used to select the causal factors. When appropriate, state how to obtain documentation for the root cause analysis.
- 2.23.6 Include the text "suspect/counterfeit products" in this section to facilitate searches if suspect/counterfeit products (Group 7B) are the topic of the report.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 131 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.24 Evaluation by Facility Manager (Data Field #24)

NOTE

Spell check and word wrap are available for this data field.

- 2.24.1 Update and verify Update Reports as required.
- 2.24.2 Include an explanation of the required evaluation, when additional evaluation is required before operation.
- 2.24.3 Provide an evaluation of the occurrence and effects or possible effect on the plant, system, or program using available information available.
- 2.24.4 For Update Reports submitted instead of an Update or Final Report, enter the reason that the Update or Final Report was not submitted and the estimated date of submission of the Update/Final Report.
- 2.25 Is Further Evaluation Required? (Data Field #25)
 - 2.25.1 Complete this field for Notification and Update/Final Reports.
 - 2.25.2 Verify and update for Update Reports.
 - 2.25.3 Enter "Y" or "N" to note if additional evaluation is required.
 - 2.25.4 Enter "Y" or "N" to note if additional evaluation is required before further operation. If evaluation is required before further operation, include the name of the person, title, or organization responsible for the action and the date of expected completion.
 - 2.25.5 Submit an Update/Final Report after all evaluations are completed and a root cause and actions are identified to correct the event and prevent recurrence.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 132 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.26 Corrective Actions (Data Field #26)

NOTES

1. Spell check and word wrap are available for this data field.
2. This field is not required on Notification or Update Reports.

- 2.26.1 Complete this field for Update/Final Reports.
- 2.26.2 Enter dates in separate field from text information.
- 2.26.3 List all actions to correct the problem and prevent recurrence.
- 2.26.4 Ensure that all causal factors listed in Blocks 20, 21, 22 are addressed.
- 2.26.5 Ensure that actions are achievable and adequate.
- 2.26.6 Provide a short title or description of the corrective action on the first line.
- 2.26.7 Provide the identity of the Point-of-Contact and phone number of the person or organization responsible for completing the corrective action on the last line.
- 2.26.8 Ensure that assigned organizations accept responsibility for corrective action.
- 2.26.9 List one action per number to track progress easily.
- 2.26.10 Include additional entries as appropriate for Roll-Up Reports.
- 2.26.11 After DOE approval, no changes are allowed to the corrective actions other than the completion date.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 133 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.27 Impact on Environment, Safety and Health (Data Field #27)

NOTES

1. Spell check and word wrap are available for this data field.
2. This field is not applicable to Notification and Update Reports.

- 2.27.1 Complete this field for Update/Final Reports.
- 2.27.2 Provide information to fully assess safety margins and safety consequences associated with the occurrence, including nonimpact determinations.
- 2.27.3 Include an assessment of the outcome for an occurrence related to nuclear safety, if the incident occurred under other possible operating parameters that may result in more serious consequences.
- 2.27.4 Obtain review by Radiation Safety if radiological contamination occurred.
- 2.27.5 Include the following information for contamination events.
- (a) Personnel Contamination Occurrences
- (1) Relative health consequences
- Less than/approaching __% of the annual deep or shallow DOE skin, lens of the eye, extremity, and/or committed effective dose limit (for any internal intake). Do not provide comparison to site or facility administrative control level. No health consequence to individual(s).
 - Greater than applicable DOE limit, potential health consequence being evaluated. Evaluation to be initiated pursuant to DOE O 225.1 requirements.



MASON & HANGER CORPORATION PANTEK PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 134 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

- Concurrent injury requiring medical assistance on-site or off-site.
- No concurrent injury. Indicate whether decontamination required on-site or off-site medical assistance.

(b) Area or Facility Contamination Occurrences

(1) Status of control

- No contamination of individual(s) on-site.
- No potential for further spread of contamination.
- Affected area decontaminated.

(2) Significance relative to applicable limits

- Maximum contamination levels ____ dpm/100 c² and units of curie per 100c².
- Comparison with Pantex RadCon Manual Table 2-2 limits. Evaluation pursuant to DOE O 225.1 dependent upon level by which Table 2-2 is exceeded.
- General area dose rate as measured at 1 meter above contaminated surface.
- Relate dose rate to actual dose received based on occupancy rate to actual dose received based on occupancy time spent in the contaminated area if worker is involved.
- No health consequence to worker if less than applicable dose limit.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 135 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.28 Programmatic Impact (Data Field #28)

NOTES

1. Spell check and word wrap are available for this data field.
2. This field is not required for Notification and Update Reports.

2.28.1 Complete this field for Update/Final Reports.

2.28.2 Describe the measurable impact of the occurrence on the affected program or project. Include any scheduled delays, additional costs, loss of plant availability for a specific period, loss of data, and lost work time if the facility is evacuated.

2.29 Impact Upon Codes and Standards (Data Field #29)

NOTES

1. Spell check and word wrap are available for this data field.
2. This field is not required for Notification and Update Reports.

2.29.1 Complete this field for Update/Final Reports.

2.29.2 State the deficiency and recommended changes for any deficiency in the requirements of national codes and standards, program standards, or DOE Orders.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 136 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Qualit
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.30 Lessons Learned (Data Field #30)

NOTES

1. Spell check and word wrap are available for this data field.
2. This field is not required for Notification and Update Reports.

2.30.1 Complete this field for Update/Final Reports.

2.30.2 State the relevant lesson(s) learned.

2.30.3 Consider the following issues to determine the lessons learned:

- (a) Why did this occur and what is the possibility of recurrence at this facility or at any other DOE site? If recurrence is unlikely, describe what makes this occurrence unique.
- (b) What barriers are implemented to prevent recurrence? Were barriers in place that proved to be ineffective in the prevention of this occurrence?
- (c) What information is available for dissemination describing the direct, contributing, and root causes? How can this information be obtained?
- (d) What good-work practices were documented that mitigated the adverse effects of the occurrence?
- (e) Did the investigation identify opportunities for improving facility operations, policies, or procedures?
- (f) How does Block 31, Similar Occurrences, affect the lesson(s) learned?
- (g) Were previous actions sufficient for past occurrences?



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 137 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.31 Similar Occurrence Report Numbers (Data Field #31)

NOTES

1. Spell check and word wrap are available for this data field.
2. This field is not required for Notification and Update Reports
The purpose of this block is to identify occurrences that might suggest a generic problem. In addition, similar reports from other sites can be valuable for identifying inadequate corrective actions and to learn how those sites managed similar occurrences.

- 2.31.1 Identify occurrences that suggest a generic problem or trend. Discuss any similar occurrence evaluation in the Facility Manager Data Field (#24).
- 2.31.2 Use similar reports from other sites to identify inadequate corrective actions and as lessons learned.
- 2.31.3 Complete this field for Update/Final Reports.

NOTE

Unusual Occurrence Reports submitted before September, 1990, are available on the Operating Experience Information System Database.

- 2.31.4 Search the ORPS database for similar occurrences at Pantex.
- 2.31.5 If no similar reports are found, enter "None."



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD
**EVENT INVESTIGATION, CRITIQUE
PROCESS AND OCCURRENCE REPORTING**

Index No. STD-3140
Page No. 138 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.32 User-Defined Field #1 (Data Field #32)

NOTE

Spell check and word wrap are available for this data field.

2.32.1 Complete this field for Pantex Notification Reports.

2.32.2 Verify and update the Update and Update/Final Reports.

2.32.3 Enter the first initial and the last name of the investigator responsible for the investigation, followed by the subject area of the occurrence.

2.33 User Defined Field #2 (Data Field #33)

NOTE

This field is not used at this time.

2.34 DOE Facility Representative Input

NOTE

This field is not available to Pantex contractor personnel.

2.34.1 The DOE Facility Representative (FR) may make comments in this block concerning evaluation of the event or investigation. The investigator reviews comments before submittal of subsequent reports.



MASON & HANGER CORPORATION PANTEX PLANT

PLANT STANDARD EVENT INVESTIGATION, CRITIQUE PROCESS AND OCCURRENCE REPORTING

Index No. STD-3140
Page No. 139 of 139
Issue 30
Date March 26, 1998

DOCUMENT
SPONSOR: Internal Audit,
Assurance & Quality
Manager

APPENDIX D (continued)

ORPS Database Operating Instructions

2.34.2 When an Update/Final Report is submitted, the FR accepts the report by entering an electronic signature in Block 36, or rejects the report and enters comments in this block to document the reason for rejection. The investigator reviews and resolves the reasons for rejection of the report before submittal of a subsequent Update/Final Report.

2.35 DOE Program Manager Input

NOTE

This field is not available to Pantex contractor personnel.

2.35.1 The DOE Program Manager (PM) may make comments in this block concerning evaluation of the event or investigation. The investigator reviews comments before submittal of subsequent reports.

2.35.2 When an Update/Final Report for an Unusual Occurrence is submitted, the P accepts the report by entering an electronic signature in Block 36, or rejects the report and enters comments to document the reason for rejection. The investigator reviews and resolves the reasons for rejection of the report before submittal of a subsequent Update/Final Report.

2.36 Signatures

NOTES

1. This field is not available to Pantex contractor personnel.
2. Signatures are automatically generated by ORPS software based on user passwords.